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Cape Town’s water: heading in the wrong direction



Water is too cheap in Cape Town and more must be done to conserve this precious resource as usage soars in a region still facing drought. Photo Reuters / Mike Hutchings.

By Dr Kevin Winter, a researcher at the University of Cape Town’s (UCT) Future Water Institute

CAPETONIANS must heed the warning of Day Zero in 2018 if another water crisis is to be averted. Despite warnings by the City of Cape Town to curb water demand and implement water-saving measures, the city’s water supply is moving in the wrong direction.

The City’s water demand in the first week of February hit an average of 1 billion litres per day, and it is anticipated that it will exceed 1.1 billion litres after a run of seven consecutive hot days.

February is typically a warm month with low rainfall. The last time the City used more than 1 billion litres of water per day was in 2014. This is equivalent to 237 litres per person per day and includes all water used for whatever purpose in the city. By comparison, most European countries, except for Italy, use between 100 and 150 litres per capita per day.

“It is odd that Cape Town is using a

larger volume despite being situated in a water-scarce region.”

Comparisons with European countries could easily be dismissed, but it is odd that Cape Town is using a larger volume despite being situated in a water-scarce region that receives increasingly unreliable seasonal rainfall, and where urbanisation and a growing population are placing greater demand on its water resources.

Increasing pressure on water supply

At the same time, the City’s aging infrastructure and slow investment in new water sources are not keeping pace with this growing demand. While relief of avoiding Day Zero has given the city a window of opportunity to increase investments in water infrastructure and treatment plants, it looks like the window might be closing faster than was hoped.

There are also signs that we are not out of a drought. Currently the storage levels of our dams are much better than during the first half of 2018, largely due to improvements in water management. But rainfall remains low. Historical rainfall

for the Wemmershoek weather station, which represents rainfall in a mountainous catchment where most supply dams are situated, shows that since November 2022 this area has had even less rainfall than in 2018.

If the South Africa Weather Service (SAWS) model is correct, then there is some relief on the way. Slightly above average rainfall is predicted in the period from March to May. Perhaps there is no need to panic just yet, but in the interim, the warning signs need to be getting louder. Avoid uncertainty and rather take action.

Water is too cheap

It comes with some relief that there are currently no water restrictions in place. Level 0 tariffs are being applied at a stepped-up rate that sees only a relatively small percentage of households that are using over 35 kilolitres of water per month paying R66.93 per kilolitre. Most households that have implemented various water-saving technologies and behavioural practices fall in the 6 kilolitres to 10.5 kilolitres per month and are paying between R161.58 and R282.76 for their water use. That equates to the cost of two large pizzas and a cool drink or two.

“Because water supply and sanitation services are essential for cities, citizens should be working to effectively safeguard that supply.”

At this rate, it doesn’t give much assurance that water resources are being managed sustainably and equitably across the City. Because water supply and sanitation services are essential for cities, citizens should be working to effectively safeguard that supply while ensuring that there is a reasonable return on revenue to support the City’s service costs and to raise capital. This will accelerate investment in essential water and sanitation infrastructure.

No one wants to pay more – especially if there is no return, but we do know that raising tariffs has a significant impact in reinforcing water conservation meas-

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NAMPO 2023 – Agriculture Innovated



A showcase of the newest trends and technology innovations is NAMPO’s promise to visitors at the 55th presentation of the Harvest Day from 16-19 May 2023.

SINCE its inception, the NAMPO Harvest Day has been the leader in showcasing agricultural innovation and providing that one stop platform to agricultural enthusiasts in South Africa. After an extremely successful and long-awaited return to the agricultural calendar last year, the 2023 NAMPO Harvest Day promises to once again exceed all expectations!

The theme “Agriculture Innovated” confirm the positive role attributed to the Harvest Day and its contribution to the future of agriculture. It will showcase agriculture’s latest technology, machinery, innovations and productivity solutions.

In it’s efforts to ensure that NAMPO is the agricultural sector’s most relevant platform and market place for innovation, technology, information exchange and discussion, Grain SA has stepped up to have expansions and improvements on the grounds and to the programme, ready for the 2023 NAMPO Harvest Day.

What’s New

Many exhibitors have upgraded and expanded their NAMPO offering and newly paved roads will improve the distribution of feet on the park. The new weapons and outdoor apparel offering has been added with the inclusion of the Dave Sheer Coun-

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Cape Town’s water: heading in the wrong direction

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ures, resulting in an improved balance between supply and demand.

Essential new water supplies

February is a tough month for water managers in the City. It might be too early to raise the alarm, but if the storage levels drop to below 50% by the end of March (currently at 59%), then it is time for more drastic action.

The SAWS model suggests that it should not be necessary, but a lower-than-average rainfall for the year will mean that Cape Town cannot avoid water restrictions. Cape Town’s water supply and demand highlights the need for cities to take proactive steps to ensure that they have the resources they need to meet the challenges of the future.

But without immediate action over the next seven years to achieve an extra 300 million litres per day of supply, the situation in Cape Town is likely to continue to deteriorate, putting the city and its residents at risk.

Originally published in The University of Cape Town News, 13th February 2023.

SA - highest unemployment rate in Africa and the third highest in the world



Dr Andrew Dickson.

ALTHOUGH South Africa’s youth unemployment rate dropped slightly in the fourth

quarter of 2022, the situation remains critical, with the latest Quarterly Labour Force Survey (QLFS) revealing that 4,6 million young people are looking for jobs. Considering that 90% of the country’s employment opportunities require youth with technical and vocational skills, as reported by the Human Resource Development Council, equipping them with

these skills is crucial for reducing the country’s unemployment rate.

This is according to Dr Andrew Dickson, Engineering Executive at CBI-electric: low voltage, who says that currently, technical skills are in dire need, particularly in the areas of electrical, mechanical, industrial, and civil engineering. In addition, there is an increasing require-

ment for artisans and technicians to support base operations within the engineering disciplines, especially as infrastructure repair and maintenance become more crucial than ever for keeping the country’s lights on.

“South Africa has the highest unemployment rate in Africa and the third highest in the world, according to a global list of 82 countries moni-

tored by Bloomberg. Our plight is far too big for Government to tackle alone. With there being 3.1 million companies in South Africa registered by the Companies and Intellectual Property Commission (CIPC), imagine what could be achieved if they all invested in institutions and individuals, especially those operating in the technical space,” concludes Dr Dickson.

Safe extension of ammonia tank life

THYSSENKRUPP Uhde has reached the halfway mark in the inspection and refurbishment of an ammonia tank located at Richards Bay’s back-of-port facilities.

thyssenkrupp Uhde designed and built two 19 034 m³ anhydrous ammonia storage tanks for the key customer back in 1982.

Ammonia (NH₃) is an inorganic compound of nitrogen and hydrogen. Ammonia gas is colourless and can either be easily compressed or cooled down to sub-zero temperatures to form a clear liquid. Liquid ammonia is stored in low pressure cryogenic tanks at harbour

import facilities for distribution to various industries around the country. Ammonia is used in a host of applications that include the manufacturing of pesticides, fertilizers, plastics, textiles, dyes and other chemicals. Ammonia is also used as a refrigerant gas and to purify water supplies.

Due to the highly corrosive properties of liquid ammonia, and to protect people and the environment, it is statutory to take storage tanks out of commission every 20 years to allow for internal and external inspection. “By inspecting the integrity of the structure, we are able to

identify possible weak areas and carry out all the necessary refurbishments. This helps to prevent potential ruptures and subsequent leakage, extend the tank service life and, importantly, also allows for continuous safe operation of the facility,” states Yurisha Singh, HOD Sales & Proposals, at thyssenkrupp Uhde.

thyssenkrupp Uhde was awarded the ammonia tank revamp project in October 2022. “As the prime contractor, we deploy a full construction management team, including safety management, to site,” explains Singh. “We appoint sub-contractors to attend to the necessary construction work.” Singh explains that the thyssenkrupp Uhde site team is well-known to the customer as they were already at Richards Bay, having just completed a project. “So the thyssenkrupp Uhde team and contractors simply ‘rolled over’ from their previous project to immediately commence with the necessary preparatory work required for the tank inspection and refurbishment process.”

Before any inspection can commence, the tank’s interior environment first has to be made safe. This involves draining all the ammonia liquid which is followed by the purging of any residual gases from the tank using an inert gas like nitrogen. Once the space is cleared from ammonia it is further vented with natural ambient air. Only then is it safe for a skilled thyssenkrupp Uhde technician to enter the tank without the need for a breathing apparatus to commence with the inspection procedures.



etration Tests (PT),” notes Singh. Further tests conducted on the ammonia tank during the inspection process include a material thickness test as well as a Radiographic Test (RT). “We also conduct an ultrasonic test on all the weld points to determine whether the quality is within parameters. Any problem spots are then flagged for re-welding.” Once all the revamp work has been completed, the thyssenkrupp Uhde team conducts further NDTs to ensure that the tank is compliant with all necessary standards.

thyssenkrupp Uhde directs its innovation prowess towards construction methods, optimising schedules

and costs as well as mitigating worker safety risks and weather hazards. Although this is not a genuine ‘green’ project, Singh confirms that some of the identified revamp scope will help to reduce environmental impact. “For example, improved insulation will help to cut down on energy loss.”

Full refurbishment of the ammonia tank will be completed by thyssenkrupp Uhde. Commissioning will take place under the direction of experts who have been especially assigned to the project, in collaboration with operations staff from the customer. Project commissioning and expected completion

date is scheduled for the month of June 2023.

thyssenkrupp Uhde’s professional inspection and value-adding refurbishment capabilities are supported by project management, procurement and engineering specialists who are based at the company’s head office in Rivonia, Gauteng. “Our ability to draw from a global competency pool coupled with our decades of local knowledge and experience, enable us to deliver turnkey plant and project solutions to our customers across Sub-Saharan Africa,” concludes Singh.

For more information visit: www.uhde.co.za

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Unique suspension crane

CONDRA is to manufacture a 15t capacity suspension crane of unusual configuration as one of two overhead cranes ordered for underground use at a Botswana diamond mine. The second machine is of conventional overhead design. The arrangement of the suspension crane is rarely seen: two I-beams defining its area of movement will be bolted to rock-bolt flanges anchored in the roof of a mine chamber after blasting, excavation and preparation as a service workshop. The I-beams will hang from the chamber's ceiling, whereas they are more usually the topmost side components of a fixed gantry constructed from the ground up.

The wheeled 11m-span crane girders will then run suspended from the lower flanges of these two long-travel I-beams, with the crane's crab mounted atop the girders to provide the

cross-travel. The whole structure of the crane becomes suspended, running along and across the roof of the chamber.

Condra designed this crane to specifications supplied by the project's consulting engineers. By suspending the crane, it will deliver the greatest possible lifting height, reducing the volume of rock needing to be blasted and excavated to form the chamber. After installation, the 11m span, 15t crane will have a lifting height of 9m.

Condra has previously manufactured similar suspension cranes for mines in central Africa.

The second crane for the diamond mine will have a 35t capacity and 9,2m span. Of conventional overhead design, it will work in a larger existing chamber. Lifting height will be 12,7m.

For both cranes, Condra's design team had to calculate bal-



Condra underground suspension crane, similar to that being manufactured.

ance points for individual components, precisely positioning lifting lugs on the sides of component assemblies so that they will hang precisely vertically below the cage that will lower them down the mineshaft. Similarly, lifting lug positions atop the components will ensure balance during crane assembly

and installation within the confined spaces of the service chambers.

It is thought that competitive pricing, rapid response times during the tender process and a reputation for on-time delivery of completed machines contributed to Condra's winning this order against competition from rival compa-

nies in South Africa and abroad.

Commenting on the latest contract, a Condra spokesman said that the 15-tonner's special configuration would make for an inspiring project on the factory floor.

"Few companies in Africa, or indeed abroad, have the design and manufacturing

skills for a suspension crane of this complexity," the spokesman said.

"It's a very nice order to get. These are big machines, and the unusual design, welding and finishing specifications will make for interesting manufacture outside the norm."

To minimise chipping and rust, Condra will apply an edge finish, grinding all angular steel to circular section before the application of a customer-specified protective coating.

The cranes will feature flame-proofing, stainless steel panels and full weld seams in place of the more usual space-welding along the lengths of steel joints, including the girders.

Control of both cranes will be by mobile pendant. The suspension crane will feature a flashing light and siren for safety.

The consulting engineers specified brake logic to avoid overuse

of the pushbuttons on the mobile pendants. Operators are prone to repeated and rapid use of this control, causing excessive heat and wear on the braking system. With brake logic, as soon as the button is pressed twice in quick succession, a two-second temporary block is activated, overriding the operator and correcting his use of this control.

The cranes will be used for service and maintenance applications, the suspension crane being installed in a chamber close to the orebody, where it will work on machinery used for drilling, blasting and ore removal. Such a location will save the time and cost of moving the machines over a greater distance to workshops closer to the shaft.

The cranes are scheduled for delivery in 2024.

For more information visit Condra's website: www.condra.co.za

AEC launches The State of South African Energy Special Report

THE African Energy Chamber (AEC) (www.EnergyChamber.org) has launched its South Africa-focused market report, providing a comprehensive overview of the state of play of the country's energy sector. Serving to guide investors and project developers interested in South Africa's immense opportunities, the report details the current challenges and upcoming opportunities across the power generation, renewable and hydrocarbon markets.

Currently, the South African energy situation represents an economically challenging one, with the report identifying that the year 2022 witnessed new electricity outage records, with an over 300% increase in outage hours compared to 2021. As per the latest updates, the country experiences between 4.5 and 6 hours of load shedding per day, with the average load shedding stage being Stage 3 (allowing for 3 GW of

the national load to be shed with outages implemented 18 hours over a four-day period) or Stage 4 (allowing for 4 GW to be shed with outages implemented 24 hours). However, advances across the power generation sector aim to turn this trend around.

Coal remains the predominant source of energy in the country, with industry representing the lion's share of consumption at 54% in 2022 and projected to reach 55% in 2025, falling to 50% in 2030. In the long-term, the report identifies solar, wind, natural gas and nuclear to drive supply, while steady industrial and residential demand is expected. On the funding side, the report emphasizes that electricity will remain the prime focus with majority of financing required from the private sector. With up to \$43.2 billion in power infrastructure needs between 2023 and 2027, opportunities for investors are immense.

Meanwhile, the report explores the state of play of South Africa's renewable energy sector, stating that solar and wind will continue to contribute to the majority of capacity in 2023 and beyond. By 2030, approximately 18 GW of hydrogen electrolyzers, 16.2 GW of pumped storage, 16 GW of battery, 15 GW of solar thermal, 14.5 GW of solar, 8 GW of onshore wind and 3 GW of storage will contribute to capacity. With only 45% of the existing installed capacity currently operating, South Africa's renewable sector offers unparalleled opportunities for green energy players.

In addition to renewables, the report goes one step further by providing an analysis of the country's natural gas market, identifying key trends across the exploration and production industries. Currently relying heavily on imports, the report states that unless large-

scale discoveries fill the gap, the import-trend will only continue. The Brulpadda and Luiperd discovery present a viable solution to stabilizing the South African market as their potential to support current and future gas-to-power projects is set to improve energy security. The discoveries represented 20% of the total African discovered volumes in 2019-2020, and with the majority of the Block yet-to-be-explored, the report emphasizes that there lie ample opportunities for exploration.

Through its detailed overview of South Africa's energy sector, covering key areas including power generation, renewable energies, natural gas and investment, the AEC's State of South African Energy Report represents a comprehensive guide to investing in South Africa's energy sector.

Get your copy of the report here (<https://apo-opa.info/42oP0Ra>)

The numbers.... don't add up

The Editor muses.

NUMBERS from Eskom that it needs 53GW of renewable power over the next ten years, might be quantumly correct, but even if we plump for the biggest capacity wind turbines currently around 6MW, we would need more than 9 000 to fill the gap, so long as the wind blows.

If one went the solar farm route – the biggest yet on South African soil is 175MW – probably 160MW in truth, then the acreage would be enormous as we would need north of 360 such stations to meet the target.

To handle and distribute all this extra power will require 14 200km of new high voltage lines and 170 additional transformers.

Whichever way you slice and dice the renewables cake, wind and solar are NOT going to crack it, and

there is really no prospect of hydro coming to the rescue either, as our geography isn't conducive. (But wait, there's Inga in the DRC! Yeah, right.)

If we discount nuclear, and it makes absolutely no sense to do so, especially small modular reactors – like the ones that have been powering ships and submarines for the past 60 years – then, if coal is off the table there is only one answer, natural gas, and by all accounts, we have an abundance both onshore and offshore which our neighbours are busy exploiting in their own back yards.

Elsewhere in this edition you'll read an opinion piece from NJ Ayuk, the Executive Chairman of the African Energy Chamber entitled: How domestic gas production can help mitigate SA's energy crisis.

I hope the powers that be read it too and then get their skates on

to create the necessary regulatory framework to make gas to power a reality and with it a climate that will attract investors to participate in the creation of a downstream industry that will not only keep the lights on, create thousands of jobs, and through CNG, (Compressed Natural Gas) reduce the transport sector's reliance on imported diesel with the knock on benefit to the environment.

Yes, natural gas is a fossil fuel, but it emits far less harmful greenhouse and other gases than coal or diesel.

We all want a habitable planet for future generations but there is no Utopia and the sooner the environmental groups that believe wind and solar will solve our energy crisis compromise on a gas to power alternative, the sooner the country can start digging itself out of the hole it has created for itself.

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ALL INDUSTRIAL, MOBILE, SPRINKLER REQUIREMENTS

ECOM Africa to tackle cybercrime after soaring levels rock Southern Africa



OVER the last two years, South Africa has recorded one of the biggest spikes in cybercrime globally. This increase has thrust the country into being the sixth highest country to be impacted by digital crime. With continued growth in the digital space, as well as the knock-on effects of COVID-19, cybercrime is impacting the country more than ever before.

A shocking 97 people per hour fell victim to cybercrime in 2021, with phishing topping the list of the biggest threats to online security. While personal cybercrime stats trump the number of attacks on businesses, corporate brands are not immune to online attacks.

TransUnion South Africa suffered a large-scale cyber-attack. 54

million records of personal data were stolen in a data breach that sent the company reeling. Personally identifiable information (PII) including ID numbers, employment information, email addresses and even passport numbers, was stolen by hackers.

This is but one example of companies being impacted by digital attacks. Over the last three years, corporate companies have become increasingly vulnerable to online crime. With COVID-19 forcing employees to work remotely, critical company data has become more accessible. Penetration points into the company have increased significantly as communication and access points become more remote.

Businesses around South Africa and fur-

ther abroad have had to remain vigilant and be on the lookout for technology to protect themselves against the attacks. However, with the constant evolution of attacks, many have expressed frustration in not being able to keep up with what is needed.

With over 2 500 delegates and 60 speakers, ECOM Africa 2023 is the ideal platform for these solution providers to connect with the top South African brands. The event brings together heads of security, online and e-commerce to discuss and unpack answers for their individual brands.

Running on 18-19 April 2023, at the CTICC in Cape Town, the event will enable information sharing and business development for cybersecurity companies globally.

“You need to make it happen,” - Women in Procurement Conference 2023

WOMEN now hold approximately 40% of procurement officer positions, according to a 2022 survey conducted by international consulting firm Gartner's. However, they only hold 31% of procurement management positions. Despite the increased employment of women in this sector over the past five years, there is a lot of work still to be done to reach gender parity. To assist in achieving this, women in procurement can do a lot to advance their careers and flourish.

This is according to MJ Schoemaker, one of the speakers at the Women in Procurement (WIP) Conference, which took place in Johannesburg recently.

Schoemaker is the President of SAPICS and has enjoyed a diverse and exciting, global career in procurement and the broader supply chain. During her Fireside Chat at the conference, she spoke about the importance of women elevating themselves through education, so that they are empowered to follow their career paths. In addition, she highlighted the importance of a community of professionals and what can be gained from joining and actively participating in associations and other communities. Schoemaker highlighted SAPICS as an exam-

ple: this is a community driven NPO that works on exactly these things such as events, networking and education. She used examples from her own career to support this.

“You need to make it happen,” says Schoemaker. “Only you have the power through networking, supporting others, being a team player and educating yourself to elevate and empower yourself and others!”

The one-day WIP Conference addressed how women in the procurement space can accelerate their journey to value, by better harnessing networks, intelligence and the experience of those at the forefront. “Our speakers’ journeys, thoughts and learnings will deploy delegates towards success, understanding and intentionality in their careers”, says Masego Khutsoane, CEO of Procurementor and Convenor of the event.



MJ Schoemaker.

The WIP Conference aimed to:

- Introduce a targeted mentorship and coaching programme for procurement professionals;
- Increase awareness of opportunities for women empowerment and funding;
- Expand networks to enable collaboration with other

- experts; and,
- Provide a platform for women in procurement to network and collaborate on various business opportunities.
- The speaker line-up included:
- Keynote address: Mpho Matsitse - Head of Industry and Value Advisory: SAP Africa
 - Fireside Chat: MJ Schoemaker (SAPICS President) and Allison Anthony (Senior Lecturer of Public Procurement Law: UNISA)
 - Master Class: Dawn Smith – Head of Training:

- Caliba Group
 - Pressures in procurement: Mmatshopo Raseboppe - Director for Supply Chain Management; Gauteng
 - Provincial Government
- The event was supported by the Black Management Forum (BMF), the Chartered Institute of Logistics and Transport: South Africa (CILTSA), CILTSA's Women in Logistics and Transport (WiLATSA) interest group, CVLC Communication, SAPICS and Tendai Mhlanga Photography.
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Alarm bells ring as dam capacities dwindle

ANTON Bredell, Western Cape Minister of Local Government, Environmental Affairs and Development Planning has called on all Western Cape municipalities to evaluate their water security and consider implementation of water restrictions.

Minster Bredell made this call after the Department of Water and Sanitation released its latest weekly report (20th February), indicating an average level of 49.7% for Western Cape dams and 56.4% for the dams providing water to Cape Town. These levels are significantly lower than the same time last year, when the province saw a combined level of 65%, and Cape Town a combined level of 80.8%

“My Department of Local Government



will be interacting with each municipality in the province to assess and evaluate their water security situation. Where necessary, we will recommend that water restrictions are implemented sooner, while there are still options available.”

According to Minister Bredell, munici-

palities should ensure their water infrastructure is well maintained to minimize leaks and water management systems should be optimised so all water can be accounted for. Catchments should be kept free of alien plants, as this can also save considerable volumes of water. On the

other hand, residents play a huge role in saving water. “Small individual actions, such as reusing water, can make a huge collective difference. We should always treat water as a scarce and valuable resource, irrespective of our dam levels,” Minister Bredell concluded.

IPR's dewatering plan saves the day at iron ore mine

WHEN flooding at an iron ore mine in South Africa's Northern Cape Province meant it could no longer access the floor of one of its pits, it called in IPR for a sustainable solution.

Rental Development Manager at IPR, previously known as Integrated Pump Rental, Ruaan Venter says the solution began with a dewatering plan. This was vital, as the mine had experienced challenges with groundwater ingress for many years – and these were not being resolved. “A common open pit dewatering method is to use pumps to extract water from the lowest levels of the mine,” explains Venter. “However, it is often not enough to perform only this step. Rather, the whole groundwater table around the mine has to be lowered, so that the pit is not continually filled with incoming water.”

He says IPR's eight years of experience in designing and manufacturing dewatering systems has given it a depth of insight into efficient and reliable groundwater control. The company's approach is to apply best practice in dewatering applications, and not just send a pump set to site without a good understanding of the operating conditions and the specific challenges being faced.

“In this case, we identified that the primary issue was the application of incorrect dewatering pumps, which were not performing the duty required,” he says. “IPR implemented a programme to assess and then repair the existing pumps on site – bringing them up to OEM specification so that they would perform reliably and deliver the expected results.”

In line with the dewatering plan, the mine's own fleet of pumps was supplemented by a custom offering from IPR. This involved some units being purchased outright from IPR, and other pumps taken on a long term rental agreement. Venter notes that dewatering has seasonal variations, and this could mean that some pumps stand idle for several months during dry periods.

“Our rental programme is offered in recognition of this to relieve customers of the cost of owning equipment that is not optimally utilised,” he says. “Instead, we supply pumps sets that are fully kitted out according to the customer's requirements – and they are ready for operation.”

He points out that the plan for this mining customer also included an appreciation of water quality and characteristics. “Groundwater and process water contain abrasive and corrosive elements in varying quantities,” says Venter. “These have an adverse effect on pump performance and life – and need to be built into the pump specifications.”

A key aspect of the plan was therefore to ensure that all pumps performed optimally, to eliminate the risk of repeated flooding. IPR is therefore maintaining all pumps on site, including its own fleet and those belonging to the mine.

“Well-matched solutions help to maximise the longevity and efficiency of the system and also optimise cost-performance ratios,” he says. “IPR ensures we deliver these results, by supplying a complete dewatering package

made up of the pump, engine or motor and couplings – as well as auxiliary equipment such as vacuum pumps, control panels and monitors. This service delivers high head pumping where the water levels must remain low for continuous production reliability.”



The IPR team prior to the pump leaving the company's facility in Jet Park.

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Business rescue vs liquidation: What is the best option for my company?



IF your company is in financial difficulties, whatever the reason, there are really only two choices you have when it comes to legal options; that being business rescue or liquidation. To put it plainly, a successful business rescue aims to restore the business to trading successfully, whilst liquidation results in the managed demise of the business.

The first question you should be asking yourself, advises senior associate and commercial law and litigation specialist at Gillan & Veldhuizen Inc. Katherine Timoney is, "Is my company commercially insolvent?"

These means determining the company's financial position and consider whether the company is able to pay its existing debts that are on the horizon, and whether it can continue its business of trading. "If the answer is no, then your company is commercially insolvent and you will need to take steps to resolve the situation quickly, as there may well be a risk of personal liability for directors that continue to trade in insolvent circumstances. This should be distinguished from factual insolvency where the company's assets, fairly valued, do not exceed its liabilities," she says. If either a state of factual or commercial insolvency exists, decisions need to be made.

Business Rescue

Rescue can be either voluntary – where a company files a board resolution putting itself into business rescue – or compulsory – where a court will order that it is put into business rescue on the application of an interested creditor. If your company is financially distressed, busi-

ness rescue will provide you and the company with breathing room by pausing the enforcement of creditors' claims against the company (including liquidation applications) brought after entering business rescue.

"Business Rescue provides for a business rescue practitioner (BRP) to take temporary control over the company's affairs, business, property and general management from the board," Timoney explains. The goal here is for the BRP to develop and implement (if approved by the company's creditors) a plan to rescue the company by restructuring its business, assets and liabilities, to try and get the company back to trading on a solvent basis or, if that is not possible, to wind the company down in a way that provides a better return to creditors than immediate liquidation.

Often, a BRP will work to obtain post-commencement financing to fund the business going forward and will have to streamline the company and its business to minimise further financial losses and maximise the chances of saving the company.

Liquidation

If there is no reasonable prospect that a company can trade out of its financial difficulty, the second option is liquidation which is a statutory process for a company to be wound up in the hands of the Master of the High Court.

Liquidators (or joint Liquidators) are appointed by the Master to investigate the company's financial position, collect debts owing to the company, sell its assets and to pay its creditors in the prescribed order

and process set out in the Insolvency Act. Like business rescue, liquidation can be entered into voluntarily – through the filing of resolution at the Companies and Intellectual Property Commission (CIPC) – or by court order.

Under the Master's supervision, the Liquidator takes over the practical, day-to-day and administrative running of the company. He (or she) can oversee the continued running of certain parts of the business during the liquidation, sell the company's assets, reach agreements with creditors, collect debts owed to the company, bring legal proceedings in the company's name and otherwise act to protect and administer the affairs and property of the company.

Ultimately, the Liquidator will draw up a liquidation and distribution account, which will set out clearly to the Master what funds the company has been able to recover, through the recovery of debts owed to it or the sale of assets, and how much the creditors will be paid. Once all the creditors are paid their share of what the Liquidator/s can recover, the company ceases to exist.

Timoney advises that directors should bear in mind that the Companies Act requires the corporate controllers of a company in financial distress to either enter business rescue proceedings, liquidate or advise inter alia the company's creditors the reason why it is not taking either route. The failure to comply with this may lead to the personal liability for the debts of the company and the concurrent allegation of reckless trading.

In short, if in doubt ask for professional advice sooner rather than later.

Giving smaller-scale miners a voice when it matters most

PROVIDING up-to-the-minute services and solutions to surface miners remains a key focus of industry association, ASPASA, which aims to smooth the way for its members to run safe, profitable and sustainable mines for decades to come.

Ever changing requirements in recent times have prompted ASPASA to adopt new and streamlined services especially for smaller-scale surface mines in order for them to better manage challenges and profit from opportunities as they arise.

Taking an introspective view of the types of services that are required is also a priority for the association's newly elected board under the leadership of industry veteran, Colin Ramukhubathi and newly appointed executive director, Letisha van den Berg.

Helping hand

"Your voice when it matters most" is being adopted as the ASPASA team's slogan who want to ensure that it is taken-to-heart and utilised continuously throughout their engagements with members at all times.

"We started with a membership survey in December last year. We wanted to determine the service needs of our members, whereafter we had a specific ASPASA MANCOM Strategy

session where they also completed the service survey. At the Strategy session the Service Wheel of ASPASA was debated in detail with a risk-ranking process to determine critical focus areas and realign the importance of each," says Letisha.

The resultant input was to move away from our original 18 focus areas (which had not been risk-rated) to 7 with the necessary sub-headings under each. These include:

- Legal including opinion, updates, and royalties.
- Safety and health including audits, health and mental health, training, and transport (TMM and AARTO).
- Environmental including audits and training.
- Technical including audits.
- Engineering includes ECSA.
- Women in mining including all aspects.
- Liaison includes internal (members) and external (government, MHSC, MINCOSA, junior/emerging mines, illegal mining, security, media, and other associations).

Future leaders

"In addition, we identified that training and development of our young members

is an important factor and took the decision to bring back a process that had worked very well in the past and that is to manage all training through the Institute of Quarrying. ASPASA will assist with company level training information and the Institute of Quarrying will focus on individuals within the industry's development.

"Another key change will be the addition of a steering committee consisting of the regional chairpersons, in which we have a few vacant positions and will ask members for nominations in both corporate and independent representation. This will streamline specific regional issues and make disseminating of information easier.

"In the same regard, we have added Victor Lupuwana from Aquarella Investments to the MANCOM team, which means ASPASA now has four corporate and four independent MANCOM representatives," Letisha says.

Way forward

The new team have already hit the ground running with valuable engagements in ground vibrations, noise air blast and fly rock draft Code of Practice, Royalty updates and the way forward, as well as Mining Indaba inputs on challenges faced by

small surface mines relating to Transnet.

There were also improvements on collaborating with SADPO and the Claybrick Association, as well as MINCOSA's Junior and Emerging mines platform. ASPASA also engaged with the members regarding the Trackless Mobile Machinery Collision avoidance system Gazette that was published on 6 December 2022. This was its first formal meeting for 2023 and over 70 participants dialled in for the virtual session.

"Next on our agenda is the provision of statistics for ASPASA, our website upgrade, finalising individual membership offering and association membership levels. We will also be producing targeted articles related directly to industry challenges and successes of the specific month or quarter. We will also give due recognition to members and MANCOM in the media.

"ASPASA is looking forward to our future engagements with our members and external liaisons to make a positive contribution towards the small surface mining industry and to add value to all our members," concludes Letisha.

ASPASA, Tel: (011) 791 3327, Email: office@aspasa.co.za, Web: www.aspasa.co.za

Green bond aims to save 18 000t of CO₂ emissions annually

TO promote more sustainable and resource efficient buildings in South Africa, the International Finance Corporation (IFC), a World Bank Group company, will invest R1-billion in a 'green bond', which will fund green improvements throughout Growthpoint's office, industrial and retail spaces across South Africa. The retrofitting improvements are expected to reduce CO₂ emissions from the company's portfolio by more than 18 000 tons annually.

The bond will also help Growthpoint, South Africa's largest primary Johannesburg Stock Exchange (JSE) listed real estate invest-

ment trust (REIT), refinance its green office building located at 144 Oxford in Rosebank, Johannesburg. The building has a Green Star 5 category certification, as defined by the Green Building Council of South Africa (GBCSA).

"Growthpoint is committed to creating space to thrive with innovative and sustainable property solutions in environmentally friendly buildings while improving the social and material wellbeing of individuals and communities. This green bond supports our ESG strategy and renewable energy goals and furthers the diversification of our funding,"

said Gerald Völkel, Growthpoint Group Financial Director.

"IFC is committed to accelerating access to green and sustainable buildings in South Africa to address climate change, protect the environment and support economic activity," said Adamou Labara, IFC Country Manager for South Africa. "The green bond investment will contribute to greater climate change resilience in the country by supporting climate-smart infrastructure and reduce the private sector's carbon footprint."

Absa Corporate and Investment Banking (CIB) acted as bond advisors for the trans-

action and helped Growthpoint with the private placement of the bond on the JSE.

Increased funding for green buildings is vital in South Africa, which is facing increasing power and water supply shortages. Furthermore, access to green funding remains limited in the country.

The bond aligns with Growthpoint's ambitious sustainability strategy to certify its entire portfolio of buildings as carbon neutral by 2050. The strategy includes reducing its greenhouse gas emissions by 25 percent and increasing its renewable energy use by more than five times by 2026.

THE BEE IN MY BONNET COLUMN

Flicker happy, until the accident happens

IS it just me or have other motorists in the Cape Town metropole noticed the growing trend of flicker happy motorists who signal the opposite of what they intend as they approach and round a traffic circle?

It goes like this: the perp is always on the inside lane (double lane road) and just before entering the circle, activates their right hand indicator, logically, showing adjacent traffic

that they intend to turn right – third exit and notwithstanding that they cause danger and confusion as they are in the wrong turning lane to make a right turn at the circle.

But wait, there's more. Halfway around the circle they indicate left, and effectively drive straight on.

I can't say that I've carried out an exhaustive study of this practice but have witnessed

it and been shocked at least a dozen times. Being of enquiring mind, I've sought to characterise the driver – is it gender or race specific or is it the type of vehicle they drive?

Not as I've been able to establish – equally men or women, race non-specific but I have noticed that they tend to drive compact white cars!

Now maybe I'm on to something. Could it be

that they are trying to demonstrate that they too want to be noticed and taken seriously among the millions of white, faceless vehicles on the road, or is it an extension of the South African predilection of over emphasis of our language – “very unique” or “baie cute” – to mix the languages?

Perhaps they spot a more expensive, zooty sports car in the outside lane and – is it an inferi-

ority complex reaction – give him or her a scare, like a prank?

The mystery deepens and perhaps we shall never know but it is a particularly dangerous practice especially if they intend turning right from the wrong lane.

I'm sure we can all recount the loo-loo's we see on the roads but mine (for now) is the driver with GP plates – white compact car

(of course), middle of the day, approaching the traffic circle on the inside lane. At the point of no return, he, and it was a he, indicated right, violently swung into the right hand lane, then half way around the circle, signalled left and took the first exit. Phew!

Drunkenness aside, I put it down to all those 'Vaalies' who are unfamiliar with traffic circles up there, they

seem to prefer four-way stops and get confused with road architecture that keeps the traffic moving and believe that if they get their first they have right of way – which doesn't necessarily apply at traffic circles where you give way to traffic on the right..

Never the less, I think I'm getting a persecution complex – does this happen to anybody else?

Eish.

B.E.D Group a double winner at the annual Fluke Comtest Award Ceremony

THE Bolt and Engineering Distributors (B.E.D.) Group has been recognised for its excellent performance with two awards by test and measurement specialist, Comtest.

Comtest provides test and measurement, communications, process control, equipment, solutions, and specialised systems from world-leading manufacturer Fluke to the southern African market.

The B.E.D. Group was the proud recipient of the Comtest Best Industrial Wholesaler 2022 Award; while their Middelburg branch won the Comtest Extra Mile Award.

Group CEO and co-founder Mike Giltrow attended this prestigious Comtest awards event by invitation, together with B.E.D.'s Marcel Pre-

torius, Area Sales Manager Tshwane; and Stephan van der Walt, Area Sales Manager Middelburg.

The B.E.D. Group supplies a comprehensive range of locally produced and imported fasteners; as well as quality tools, welding and cutting equipment and consumables, bearings, personal and protective equipment (PPE), industrial paints and thinners, oils and lubricants, and lifting products to South African industry and across southern and central Africa.

B.E.D. Group CEO and co-founder Mike Giltrow explains: “The annual Comtest awards acknowledge their partners' sales and service delivery, which in turn enable their customers' success. Winning these two Comtest distributor awards is



L – R: Jannie Dirks, Comtest Sales Director, Hennie Claasens – Sales Account Manager Comtest Pty Ltd, Mike Giltrow - CEO Bolt & Engineering Distributors (Group), Barend Niemand, Comtest CEO and Fayez al Nobani, Fluke Sales Director for the Middle East and Africa region.

an exciting and proud achievement for Bolt and Engineering!

It is really satisfying

to have had our team's hard work and dedication recognised by a prestigious global sup-

plier such as Comtest. We would also like to acknowledge the amazing team at Comtest

for their ongoing support and assisting us in getting this award.”

Comtest is committed to service excellence, and promises to offer smooth implementation of systems with high levels of maintenance and support - while keeping customers' test, measurement, communication, process and calibration equipment at consistently high levels of operation and accuracy.

“The B.E.D. Group has been customer service-based from inception, and it remains our primary focus,” notes Giltrow. “We proudly celebrated our 39th anniversary in November 2022, and are looking forward to commemorating our 40th this November.

We take our ‘100 / 0’ operational ethos very seriously, meaning our entire team pledges to always give

100 percent of our best efforts - with zero tolerance for excuses. In 2023, we have also launched our ‘#CGB’, which stands for ‘continuously getting better’. This dovetails perfectly with 100/0, as both approaches ultimately speak to the overall aim of continuous improvement. We are therefore very pleased to be in partnership with Comtest - it is a true fit of like-minded companies, and we accept these awards with gratitude and appreciation.

It has been very pleasing to work together with our supplier Comtest to achieve these good results, and assist in meeting our customers' challenges. We look forward to achieving even better results as we continue working with them in 2023,” concludes Giltrow.

Water mist tech sparks industry interest

THE use of water mist fire-suppression technologies has been increasing as more land-based applications have been identified and the benefits of such technologies are being realised by industry leaders and experts, says environmental solutions company I-CAT mechanical engineer Jeanri van Tonder.

The general trend shows that interest in water mist technologies has been increasing over the years, with significantly more research and testing being conducted, she adds.

“In my opinion, water mist technology has the potential to become the frontier in fire suppression globally in years to come.”

Van Tonder explains that the size of the water mist droplets makes water mist technology

superior to other water-based fire-suppression systems.

A standard sprinkler head generally breaks up a water stream into droplets of about 4mm in diameter; however, a specialised water-mist nozzle will atomise water into droplet sizes ranging from 50µm to 1000µm.

This may not only increase the cooling capability of water mist by up to 40 times – compared with that of a sprinkler's water spray for the same volume of water – but also creates an inert atmosphere by instant vaporisation of water mist droplets, which suffocates the fire instantly, Van Tonder adds.

Consequently, a reduction of up to 90% in water consumption can be achieved when using water mist nozzles

instead of sprinklers. This also allows for stored pressure water mist systems to be used for a range of applications, even when water is not easily or readily accessible.

Such systems consist of stored pressure cylinders, which contain water and an atomising medium at low pressure, as well as pipework and the water mist nozzles.

“The simplicity of a stored pressure system permits its use in the most remote applications or where space is limited. This makes it more versatile than high-pressure water mist systems,” explains Van Tonder.

The systems can also suppress not only ordinary combustible fires, fuel fires, and cooking oil fires but also electrical fires, as the atomised water droplets result in

significantly less water being needed to suppress the fire.

“Water mist systems have been identified as an effective solution to protect valuable electrical equipment against a fire. “The systems have gained public interest because of their significantly smaller water consumption and ability to suppress fires without causing substantial functional damage to equipment.”

Unlike clean agent suppression systems, using water mist systems does not require the enclosure in which it is used to be completely closed, with fire suppression performance of water mist systems being superior in the presence of ventilation compared to clean agent suppression systems. Additionally, there is virtually no clean-up required after

the water mist system has discharged as is the case with condensed aerosol suppression systems.

Van Tonder points out that this makes the systems “incredibly versatile”, as they can be used in a variety of applications.

“The reduction in water damage when using water mist systems also allows for high-value items and structures to be protected from a fire while being preserved for future use.”

Lack of Guidance In South Africa, fire extinguishers and mobile fire-fighting equipment are thoroughly regulated by the Occupational Health and Safety Act, as well as the relevant health and safety standards.

Van Tonder notes that there are also

extensive mandatory requirements for the fire protection of buildings, which are listed in SANS 10400-T for various occupancies.

“Ironically, there is especially a lack of guidance for the mitigation of fire risks in the mining and industrial sector, where automatic fire suppression of high-risk equipment – such as conveyors, transformers and fuel storage tanks – are not specified in the regulation.”

She explains that the Mine Health and Safety Act requires an end-user to “take reasonably practicable measures” to mitigate fire hazards in the workplace. The Act also requires that end-users ensure that all personnel are sufficiently protected from injury or death, which may result from a fire.

For this reason, busi-

ness owners may often adopt standards published by the National Fire Protection Association and Factory Mutual that they consider to be applicable to them.

Van Tonder says water mist fire-suppression system manufacturers will need to actively engage with certification and approval bodies, as this will enable them to identify further applications for water mist, conduct scaled tests and ensure that health and safety standards are more accommodating towards novel fire-suppression technologies in the future.

“It is also up to the original-equipment manufacturers to expose end-users and clients to the endless advantages of using water mist fire-suppression systems.”

Five-year streak without breakdowns

AFTER a food manufacturing plant suffered frequent breakdowns of its electrical motors, Lubrication Engineers (LE) South Africa recommended the use of single-point lubricators to automate the accurate dispensing of lubrication to all the bearings around the plant. As a result of the automated lubricators being installed, over five years later the client hasn't had a single mechanical breakdown.

Before the single-point system was installed, each of the 150 lubrication points at the facility had to be manually lubricated. This was an enormous task for the maintenance team and many of the lubrication points were located in hard-to-reach places. The magnitude of the work and the accessibility challenges inevitably led to some bearings being over lubricated or under lubricated, resulting in

misalignment, trapped dirt forming grooves in the bearing components, metal fatigue or localised rapid wear.

Sam Kekana, the Technical Sales Representative from LE South Africa who worked on the switchover to single-point lubricators with the client, says that in addition to the cost benefits, the overall performance of equipment has improved. "The benefits of single-point lubrication definitely justify the investment," he adds.

LE's team has been working with this client for over a decade, and identified the single-point lubrication option as an important solution for its needs because single-point lubricators are versatile and can be used on almost every application imaginable.

For more information, visit www.lubricationengineers.co.za.

Mattei compressor technology is behind the top performance levels at Stobag

WITH safety and reliability a priority, Stobag, a leading Swiss international manufacturer of weather protection solutions such as sunshades, pergolas, closures for windows and glazed façades, have chosen Mattei's rotary vane compressor technology.

Stobag is a company capable of combining tradition and innovation. Founded on the outskirts of Zurich in 1964, in 58 years of business it has distinguished itself for passion, quality and reliability.

Developed with important designers and architects, its products offer original, often unprecedented solutions that are always solid and reliable. "Our goal is to make living spaces more valuable together," explains Kevin Glättli, chief technology officer at Stobag. "Around 700 employees work at our

seven plants, 300 of which are at the Muri location. Exports for us are an important asset: we see our products in 35 countries. Our company has grown over the years and with the expansion also came the need for having high-performance production systems, higher volumes of compressed air, for example for the powder coating department. During our search for reliable and high-performance machinery, we came into contact with the REMCO company, which enabled us to appreciate the features of Mattei compressors."

Different types of Mattei compressors were installed at Stobag: a Blade12 i compressor, designed to rapidly reach the operating temperature and equipped with an inverter, which automatically adjusts the rotary speed of the motor to ensure that

the air emitted by the system always corresponds to the demand in real time, ensuring maximum energy savings; two models from the Air Centre series, AC 22 R Plus and AC 45 R Plus, compressors equipped with an integrated dryer and heat recovery system to obtain clean air that is humidity-free and recover heat allowing water to be heated for industrial or sanitary use. Furthermore, the low rotational speed of the compressor unit and the direct 1:1 coupling between electric motor and compressor ensure energy savings of more than 15% compared to other rotary compressors.

Stobag has also purchased a state-of-the-art compressor: the RVX75i compressor. This is the most innovative series of Mattei compressors, featuring Xtreme technology, which propels Mattei into 4.0

"We have been working with Mattei since our business started up almost two decades ago..."

technology and consists of three essential innovations: the innovative Xtreme oil-injection system that reduces oil circulation by 50%; the Xtreme Thermal Management Technology smart-thermal adjustment system; and the new Maestro XC controller with 10-inch touch-screen graphic interface and the possibility of remote control, internet connection via the company network or with the 'on board' modem and immediate alert service by email in the event of a fault or malfunction.

The collaboration with Stobag came about through a partnership with REMCO, a Swiss-based distributor active in the compressed air sector since 1996. "We

have been working with Mattei since our business started up almost two decades ago, and we are very satisfied with this relationship; we have gained long-standing experience in the industry, and we are a point of reference for our customers," says Martin Peter. We are partners of Mattei not only for Industrial Applications but also for OEM Special Applications, especially for Gas solutions, adds Mr Peter.

Mattei compressors with their rotary vane technology and Xtreme technology innovations are an excellent solution in terms of quality compressed air production capacity, energy savings, low maintenance costs and product sustainability.

MATTEI breaking boundaries in terms of Energy-efficiency... RVX 55-90i

Savings in energy-consumption, reduction in negative environmental impact, improvements in our safety and fighting the battle against global-warming.

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Farms in cities: new study offers planners and growers food for thought

Study conducted by:
Jan Hugo Senior lecturer in Sustainable and Climate Responsive Architecture, University of Pretoria
Andy van den Dobbelsteen Professor of Climate Design & Sustainability, Delft University of Technology
Chrisna du Plessis Professor and Head of Department, Architecture, University of Pretoria

URBAN agriculture as a global phenomenon is widely promoted as a sustainable land use practice. On small plots and in big projects, using sophisticated technology or simple solutions, city dwellers around the world are producing food. Growing food in a city can improve local food security and express local culture.

Little information is available, though, on what kinds of spaces and technologies urban agriculture requires. This sort of information would be useful to architects and built environment specialists when they design buildings and urban spaces that can accommodate urban agriculture.

As part of a larger research project on the climate change adaptation potential of urban agriculture, our study explored the spatial, material and technological characteristics of selected urban agriculture farms. We looked at how it's done in dense urban settings in four countries: Belgium, the Netherlands, Singapore and South Africa.

The selection of countries aimed to present diversity of context, climatic conditions and forms of urban agriculture. Belgium, the Netherlands and Singapore are developed and high-income countries. South Africa is a developing context and therefore offers a contrasting perspective.

By defining the types and linking them with spatial, material and technology needs, we offer professionals information they can use when introducing food production into their projects.

Our overview of urban farming highlights the need to develop and use appropriate technologies in poorer and rapidly growing cities. These are the features of most sub-Saharan African cities.

Urban farms are often assumed to contribute to public spaces in cities. Some are part of large urban regeneration initiatives. But our findings prove this isn't always the case.

Finally, we saw a range of technological appli-

cations and solutions. Many farms used highly sophisticated growing technologies. They include zero-acreage farms, which don't use farmland or open space, but are part of buildings. Hydroponics (growing plants in nutrient-rich water) and vertical agriculture (growing plants on vertical structures) are zero-acreage methods.

Critical findings

Urban agriculture can offer cities several benefits. But certain types of urban farming, especially zero acreage farms, can potentially impede sustainable development. They may be more isolated from their surrounding context, less flexible and adaptable, and less multifunctional. Isolation, and only focusing on food production, reduces the economic potential and social impact of these farms.

The choice of urban agriculture technology is an important consideration for urban planners, architects, developers and farmers working in developing cities.

This article is republished from The Conversation under a Creative Commons license. Read the original at: <https://theconversation.com/farms-in-cities-new-study-offers-planners-and-growers-food-for-thought-198166>.

JBT peace of mind maintenance and repair services

JOHN Bean Technologies Corporation (JBT) is a leading global technology solutions provider to high-value segments of the food processing and air transportation industries. It designs, manufactures, tests and services technologically sophisticated systems and products for its customers.

The JBT Diversified Food & Health division develops and delivers innovative, in-container processing and fruit and juice processing solutions to multinational and regional food processors.

PRoCare programme

Maximum uptime and smooth operation is a JBT fundamental. With a long history of food processing equipment, JBT service technicians have faced and solved some of the toughest problems for processors within the food industry. Its differentiated service packages aim at keeping equipment running as profitably as possible, for as long as possible and with minimum downtime.

JBT PRoCare is a tailored turnkey regular maintenance, repair and support programme where expert on-site personnel carry out essential maintenance operations and provide customer training.

Traditional equip-

ment maintenance – dealing with problems as they arise – often involves unnecessarily expensive, unbudgeted and unsatisfactory quick fixes. JBT's PRoCARE programme, by contrast, anticipates issues before they become problems, applying proactive system management that enables customers to keep within budget and avoid costly downtime.

In some cases, using PRoCARE has saved customers thousands in unnecessary parts expenditure.

OmniBlu™

The JBT OmniBlu platform, – a subscription-based contract including best-in-class service, parts availability, and machine optimization capabilities – all sup-

ported by a powerful digital backbone leveraging AI, machine learning, and predictive analytics. JBT, takes pride in being a premier partner to its customers in developing and providing state-of-the-art, reliable, and efficient machinery.

JBT is transforming the way it serves its customers through three core offerings

These digital solutions & service offerings are designed to address key customer pain points – investing in a new and improved service offering to create value by working together.

Proactive Maintenance

The OmniBlu platform's Maintenance Manager enables proactive maintenance through easy-to-follow preventive mainte-

nance plans, diagnostics, inspections, and training.

Parts & Service

JBT provide rapid response service, critical parts, and first-class technical support. Its Frictionless Parts & Service portal allows easy selection of the right part, every time.

Digital Tools & Insights

JBT offers cutting-edge digital tools, optical sensors, and AI-driven insights to optimize your production and overall equipment efficiency.

Lubricants

Equipment function and wear are directly related to the choice of lubricant, which is why JBT have developed its

own range of food grade lubricants – tested and proven under the most severe operating conditions to protect the investment at the same time simplify the supply of a complete range of equipment customized and certified food grade lubricants.

JBT Lubrication Manual (<https://www.jbtc.com/foodtech/products-and-solutions/products/lubricants/>) offers comprehensive information on the correct lubricant to use for cooking and juice processing equipment.

For further information and enquiries contact Martin Maree, Customer Care Account Manager, Diversified Food & Health: email: martin.maree@jbtc.com or capetown.parts@jbtc.com. Tel: 021 982 1130



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Sustainability in the agricultural sector

By CBN Staff
reporter: Mzwandile Mamaila

THE agricultural sector presents vast entrepreneurial and employment opportunities with South African agro-processing contributing approximately R124 billion to the GDP, according to the Department of Trade and Industry.

“...in 2019, we invested over R1,4-billion towards the B-BBEE procurement spend by empowering black suppliers...”

Local and foreign entrepreneurs are being encouraged to invest in agricultural businesses, via SOE's such as the Agribusiness Development Agency, where emerging commercial farmers and agribusiness entrepreneurs are pro-

moted and exposed to foreign investors. The demand for agro-processing and food security in South Africa continues to increase as the population expands. The establishment of Industrial Development Zones (IDZ's) and Special Economic Zones (SEZ's) are designed to attract foreign direct investment that can assist amongst

ing and production facilities which create demand for grains and raw produce supplied by local farmers. Foreign investment in South African agricultural production and food manufacture creates opportunities and innovation for both the farmers and the food manufacturers with the conglomerates in certain cases providing direct cash injections to farmers who can then procure the latest agricultural equipment, such as drone technology, to maximise yield and quality of the raw materials while enabling more environmentally friendly practices to minimise global warming. “To demonstrate our commitments, in 2019, we invested over R1,4-billion towards the B-BBEE procurement spend by empowering black suppliers and in turn, creating jobs through various enterprise development initiatives. This

figure included investments of R52 million to support emerging black farmers through our dairy projects in the Eastern Cape and Western Cape as well as incremental spend of R100 million on black rural development projects across the country,” stated Managing Director of Nestle East and Southern Africa Region Bruno Olierhoek in a recent press release. Nestle has also invested in initiatives that will assist farmers in growing sustainable foods while reducing their emissions. Nestle advocates for regenerative agricultural practices and ensures South African farmers are up to date with the necessary materials that will regeneratively create sustainability, with the aims of reaching NET ZERO by 2050. The provision of modern tools from Nestle, such as supply chain mapping, certification, and satellite monitor-





Nestle's regenerative farms which contribute to South Africa's agricultural sector. Source: Nestle Facebook page.

ing, further prevents deforestation with the aim of deforestation-free supply chains for palm oil, pulp and paper, meat, soy, sugar, cocoa, and coffee. As South African agro-processing is a multi-step process that requires various enti-

ties, foreign investment is a dire need. To prolong the success of the South African agricultural sector and maintain food security, foreign investment will remain a necessity that the South African government will continuously prioritize. There-

fore, ensuring South African agro-processing and food security are successful. Source: Bruno Olierhoek <https://www.nestle-esar.com/> #Nestle #goodplanet #goodliving

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PROUDLY SOUTH AFRICAN MANUFACTURERS OF:

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NAMPO 2023 – Agriculture Innovated

Continued from P1

try Ranch exhibitions. New outside exhibition spaces on the southern side of the grounds bring the total number of exhibitors to more than 800. A new coffee bar will satisfy any coffee-lover's appetite offering a relaxed lounge atmosphere situated on the southern side at Gate 2.

Old Favourites

The traditional NAMPO favourites still part of the programme, include the popular 4x4 vehicle demonstrations on the Standard Bank 4x4-track and the Adventure Track for side-by-side, motorcycle and quad trails. The well-know Farmer's Patent Competition with Omnia & Landbouweekblad boasts different divisions for entry, and is an exhibition not to be missed. The seed plots on the eastern side of the park, offer a view of grain and feed crops and grass varieties of SA's leading seed companies. The Nation In Conversation popular discussion forum bring together role players in the agricultural sec-

New outside exhibition spaces on the southern side of the grounds bring the total number of exhibitors to more than 800.

tor to reflect on issues, locally and internationally. Filmed during NAMPO and accommodating approximately 80 guests in the audience, the discussions are streamed live on various platforms. The livestock division, include cattle, sheep, pig and goats, representing almost 100% of the large- and small-stock breeds, as well as miniature horses. Daily livestock exhibitions are also scheduled at the TAU Livestock arena where all standard foot & mouth disease protocols will be followed.

Getting around

Getting around the vastness of the NAMPO Park grounds are covered in more ways than one. Media partner OFM will broadcast live from NAMPO Park with a dedicated Agri hour from 11am and dedicated traffic

updates throughout the day will ensure listeners travel safely to and from the event. The “Mieliehop” shuttle service will be running between NAMPO & Bothaville daily and offer long distance shuttles from the OR Tambo airport as well as the surrounding towns. For the air traffic, the Absolute Aviation airport lounge welcome visitors to the northern side of the park with a shuttle service available to Gate 3. Visitors on the park can use some of the nine tractor trailers that follow different routes across the grounds, to ease the burden on the feet. For further enquiries contact Dr Dirk Strydom, NAMPO, Marketing & Research Coordination Lead, Grain SA 086 004 7246, dirks@grainsa.co.za, www.grainsa.co.za

Bespoke fire-risk systems for agri and food processing



Michael van Niekerk.

"IN creating a bespoke system for any new or operational businesses, we look at each risk area and ask what it is we need to do to mitigate this particular risk," explains ASP Fire CEO Michael van Niekerk.

The company's risk mitigation systems comply with the NFPA 36 standard for several solvent extraction plants in terms of fire prevention and suppression. Compliance is vital to save lives, reduce the costs of fire damage, and protect equipment and buildings from major damage.

"We install the best systems possible and ensure compliance with national and international fire safety standards. This includes sign-off from insurance companies and local authorities to safeguard people and property," highlights van Niekerk.

The company's track record includes completing rational designs for solvent extraction plant clients operating sunflower and soya seed processing facilities in the Limpopo Province, North West Province, Gauteng and Mpumalanga. An initial oil rich mash or cake is formed and then the oil is extracted using a hexane solvent process. This highly flammable solvent that extracts the oil from the

meal is then removed from the oil by a drying process.

The two major risk areas here are the preparation and solvent plant buildings, each around six storeys high, which makes escape for any occupants in the event of a fire a massive challenge. When the product starts to burn, it does so rapidly, which calls for fast-acting fire suppression.

The last part of the process is storing the dried meal, where there is a lot of airborne dust. This creates an explosive atmosphere that can be ignited by a single spark, posing a potentially far greater fire risk than the hexane plant itself. There is also crude oil storage that is not flammable but combustible.

One of the biggest risks in industries that use solvents such as hexane is the so-called BLEVE phenomenon, an acronym for Boiling Expanding Liquid Vapour Explosion. A hexane tanker could be up to 42m3 in size, so an incident such as brake failure can quickly become a tanker fire. This is evident in the recent gas tanker explosion in Gauteng where 41 people died.

Mitigating the overall fire risk associated with tankers and refinery structures calls for a high-velocity deluge

system over the solvent tankers at the refuelling point. As the solvent is highly flammable, any fire must be put out to avoid a BLEVE event.

Another project at a leading Mpumalanga macadamia nut processing company called for compartmentalisation, safety distances, access routes and installation of a fire-detection system. Macadamia nuts have a high fat content of 70%, which is a major fire risk in any processing facility.

Macadamia nuts are supplied in bulk by farmers and go through an initial drying process. Thereafter, the nuts are shelled and sorted before a second drying process and reaching the packaging area. The processing facility is large, meaning product must be moved from section to section by conveyor belts. Having the opportunity to design the system from scratch allowed ASP Fire to take all factors into consideration without having to remove existing systems.

Interlocking, the automatic shut-off of certain processes, is used to control the spread of any potential fire. The bulk conveyors that move from one section to the next generally pass through the firewalls, which means the firewalls themselves must be sealed off in the event of a fire to stop any combustible product moving from one enclosure to another.

"We design the most comprehensive set of solutions, using the most advanced methods and equipment available. Insurers and local authorities certify that we have addressed all necessary regulations and that all our work complies with the strict standards governing that specific industry. Then it is about constant vigilance and inspections, caution on the part of by all personnel and knowing how to avoid the unimaginable," concludes van Niekerk.

The strength of your machine is defined by its pivot joints

BMG's Nord-Lock range of bolting solutions includes Expander System pivot pin components that comprise advanced pivot pin technology, to offer dependable solutions that combat the challenges of lug wear in diverse industries.

Pivots, which are at the centre of any rotational movement, often experience lug wear, which occurs due to the clearance between the bore and the conventional pin. This is commonly repaired with line boring – a technique associated with high costs and protracted downtime.

"Through Nord-Lock's advanced Expander System, which consists of a comprehensive range of components, BMG specialists are able to supply the correct pivot to prevent the problems that lug wear causes excavators, mobile cranes and dump trucks, in order to maximise uptime, enhance safety on site and minimise maintenance costs," says Wean Marais, National Product Manager - Nord-Lock Group, Fasteners Division, BMG. "The Expander System – which comprises an assembly that includes an axle tapered at both ends, two expansion sleeves, two tension washers and two fasteners – has been designed for convenient onsite repairs. Even in a situation where the lugs are badly worn, a repair can be made in the field, with minimum downtime. The sleeves of the Expander System simply expand to conform with the wear pattern and lock the system in place, without the need



for time consuming and costly welding and line boring. Once retorqued, the system locks from both sides, significantly increasing stability.

"This system has also been designed to improve safety on site. By replacing a traditional straight pin with an Expander System pivot pin of the same diameter, the risk of axle breakage is reduced and the strength of the machine is enhanced through the system's double sided axial locking design.

"There are many other benefits, which include a permanent solution to lug wear, quick and easy installation and removal, increased service life of bushings, bearings and seals and greater safety. A key advantage of this system over conventional pivot pins is pressure distribution. A conventional system only distributes the load onto a very small area, where the Expander System distributes pressure over the whole contact area in the direction of the force.

"There is no need

for additional fastening holes, threads or welding of locking rings on the machine and no need for fine machining in the lugs, as this system makes it possible to use wide tolerances. The Expander System can also be combined with Nord-Lock washers for enhanced efficiency in vibration-intense applications."

BMG's customised Expander System pivot pins are specifically adapted to suit exact requirements, through the use of specific materials, hardening treatments, surface coatings and the correct tolerance for each application.

This system is suitable for use in many industries, including construction, steel, railway, bridge building, mining and quarrying, forestry and agriculture, manufacturing and processing, shipbuilding, marine energy and power generation, oil and gas, transportation and machine building.

Severe vibration of heavy machinery is a major challenge in the mining industry. BMG

specialists recommend the use of the Expander System in conjunction with Nord-Lock wedge-locking washers as an efficient vibration-resilient pivot solution for reduced maintenance and downtime in loading and hauling equipment, drilling, excavators and mechanical scalers.

The Expander System is quick and easy to install and remove, allowing for on-site maintenance, substantially decreasing production losses associated with downtime.

Nord-Lock Expander pivot pins – used by many leading Original Equipment Manufacturers – have been endurance tested for over 50 000 hours without failure and more than 1 million pivot pins have been installed in over 60 000 applications.

For further information contact: Wean Marais, National Product Manager - Nord-Lock Group, Fasteners Division, BMG Email: weanm@bmworld.net

Plastic-free food packaging alternative

By Amelia Keleher, a Food Tank Research & Writing Fellow

A team of scientists from Rutgers and Harvard University recently developed a biodegradable spray-on food wrapper. The researchers believe this wrapper can preserve the shelf-life of food, reduce food and plastic waste, and increase food safety.

In 2018, the United States generated 35.7 million tons of plastics, according to the U.S. Environmental Protection Agency (EPA). As of 2018, over 75 percent of plastics produced in the U.S. ended up in the landfill. And according to research published in Our World in Data, plastic packaging

is the leading source of global plastic waste generation.

"Food waste and food safety are among the major concerns in our society, especially in the period of COVID-19," Huibin Chang, a research associate in bioengineering at Harvard University who was involved in the development of the wrapper, tells Food Tank. Chang explains that most food wrappers today are non-biodegradable, leading to environmental pollution.

The spray on wrapper's main ingredient is pullulan, an edible fibre that the U.S. Food and Drug Administration (FDA) "generally recognize[s] as safe" (GRAS). The mixture of the biodegradable

polymer and non-toxic solvents can be rinsed off with water.

"The goal of [the spray-on wrapper] project is to improve the shelf-life of foods with less amount [of] antimicrobial coatings using green processes," Chang tells Food Tank.

But Nishad Jayasundara, an environmental toxicologist at Duke University who was not involved in the study, wants to see further research into how these materials breakdown and their environmental impact. According to Jayasundara, additional research is needed to determine whether the 'rinsing' method of disposal of the spray-on wrapper causes the initial non-toxic materials to break

down in potentially harmful ways.

Ritva Krist, Marketing Manager at German startup, traceless, tells Food Tank that "the spray-on wrapper is a very promising invention with great potential to create an impact." Traceless creates sustainable packaging alternatives to conventional plastics and bioplastics that can be integrated into the natural material cycle. The company's goal is to replace plastic in as many products as possible to reduce the amount of plastic that ends up in nature, Krist tells Food Tank.

Article as originally appeared in Food Tank <https://foodtank.com>, shortened for space.

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Strong product line-up spurs sales for Integrated Air Solutions



Wayne Jacobs.

SINCE take over as MD of Integrated Air Solutions in October 2022, Wayne Jacobs has been building sales focus on the company's extensive range of ELGi, FS-Elliott and recently secured ABC Compressor ranges.

With more than 25 years' experience in the compressor industry with some leading international brands, Jacobs recognises the opportunities for the range line-up in just about every industrial sector – from small scale manufacturing and assembly businesses to heavy engineering, railway and allied sectors, agriculture, food and beverage, automotive and process industries.

"Having the renown ELGi range supplemented by our exclusive distributorship with

FS Elliott in the USA means that there isn't a compressor application that we can't meet with machines with a world-wide reputation for performance and longevity, proven in our harsh operating conditions" said Jacobs.

ELGi has a complete range of compressed air solutions: oil-lubricated and oil-free rotary screw compressors, high pressure diesel-driven rig compressors, oil-lubricated and compressors and centrifugal compressors, portable compressors, dryers, filters and downstream accessories.

"The ELGi range is ideally suited to our Southern African climate having been tried and tested here for over 25 years in our harsh environment" he said.

The recent sign-

ing of a partnership agreement with leading North American air compressor manufacturer, FS-Elliott, has extended Integrated Air Solutions' capabilities to include the supply of spare parts, service and plant upgrades to the local existing installed base of FS-Elliott centrifugal oil-free compressors.

Pennsylvania-based FS-Elliott is a global leader in the field of centrifugal air compressors with their Polaris® industrial compressed air range offering reliable flow of oil-free air to ISO 8573-1 Class 0 from 900 cfm to 12 000 cfm, and their ground breaking PAP PLUS engineered series flow capabilities of up to 24 500 cfm.

PET market niche

"We've also identified promising growth potential in Southern Africa for high pressure oil free compressors used in PET bottle blowing applications and concluded a distributor agreement with ABC Compressors who specialise in this market segment. These Spanish manufactured machines have been providing sales and service in virtually all countries worldwide for more than 80 years" explained Jacobs.

"The well-respected

ABC range also has applications outside of the food and beverage sector too, including natural gas, petrochemicals, aerospace, water treatment and biogas industries."

Rental Division

"Our rental division comprises a range electric and diesel portable compressors to meet the needs of customers who prefer the benefits of renting over purchasing and to support our sales division where we are able to offer our customers reliable temporary solutions while they wait for their existing compressor to be replaced or repaired. "This approach ensures that our customers have the highest up-time, productivity and return on their rental investment.

"Our rental fleet consists of the following units:

- Electrical compressors from 7.5kW to 250kW with pressures from 7 – 10 bar
- Diesel compressors from 185cfm to 1 100cfm with pressure ranging from 7 to 10 bar
- High Pressure diesel compressors - 21 bar with a flow of 1 100cfm

"We service each

compressor in-house before the unit leaves on its next hire and offer skilled compressor technicians to support our customers' service needs on site.

"Our rental options offer fast, flexible, cost- and energy-efficient, and reliable industrial air supply for planned contingencies or that unexpected emergency. Rental is the ideal solution for industrial shutdowns, short term construction and civil works, and annual shutdowns in mines and refineries.

Service, service, service.

"No matter how good and reliable a machine is, if the product isn't well supported with qualified technicians and plentiful spare parts back-up, then its reputation quickly fades. We have invested heavily in ensuring customers have ready access to these services both on site and through our repair and refurbishment centre in Witfield in Boksburg and via our branch in Durban. Strong growth in Western Cape industries dictates that we will soon be opening a sales and service facility in Cape Town to cater for rapidly increasing demand in that region" he concluded.

Tech devices revolutionizing agriculture in 2023 and beyond



By Justin Platt,
Founder & CEO,
Zylem and RegenZ

AGRITECH is a growing industry in today's connected world, and it's time for today's farmers to harness its potential for improved decision-making, production, access to markets, and new investment opportunities. The implementation of smart farming technologies helps producers and growers to achieve the highest potential in their farming activities, and, if you're farming isn't getting smarter, you're getting left behind. This article looks at five technological devices set to revolutionise agriculture in 2023 and beyond.

#1 Smart soil health measurement tools

We recently engaged with PES Technologies to learn more about the future of soil health

measurement. They've developed a tool that turns soil testing into a five-minute process. The device is hand-held and battery-powered, controlled using a smartphone app. You can analyse soil samples right then and there in the field without any sample preparation.

#2 Cloud-based data platforms

Cloud-based platforms like Continuum Ag's TopSoil Tool are able to aggregate soil health data and deliver unbiased recommendations to provide farmers with direction and freedom to make agronomic decisions that drive higher yield and higher profit along with environmental sustainability.

#3 Handheld bio nutrient spectrometer

A bio nutrient spectrometer is a hand-held device that can be used to measure the nutrient density in food and crops, along with carbon in the soil.

#4 Satellite crop monitoring

The main advantage of aerial satellite imagery is its ability to provide a bird's eye view of your farm, helping you gain big data to manage multiple fields, cut costs on resources and make reliable decisions.

#5 Drone imagery

Drone-based data is superior to on-foot inspections since drones can use thermal and multispectral imagery to deliver data at a level unseen to the naked eye. Combined with artificial intelligence (AI) analysis, drone imagery can provide actionable data on plant health in near real-time so that farmers can optimise and protect their yields.

Armed with this data (quite literally) in the palm of your hand, you can use this technology to increase yields and reduce costs. Failure to do so is, quite frankly, the equivalent of using a Nokia 3310 in 2023.

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Maxiflex launches Atmodoor 2.0 - hinged on local innovation



Atmodoor now features even more innovations.

MAXIFLEX has improved its renowned, in-house designed and developed Atmodoor.

"In keeping with our drive for continuous innovation and improvement, we decided that it was time to give our popular and long-selling Atmodoor, also referred to as an impact, traffic, or swing door, an upgrade," states Jacques Snyman, National Operations Manager at Maxiflex. "The Covid-19 pandemic presented us with the perfect opportunity to do our homework. Investing in extensive R&D as well as in feedback from our valuable customers, we implemented a number of improvements to offer users a seamless solution. We focused the upgrade mainly on the door hinges and fitted a new innovative and rugged double-action swing hinge with a stainless steel pin. Although this

is a back-end door, we also wanted to address aesthetics. The new-generation door now boasts a more modern look combined with a softer, less industrial appearance. We have essentially taken the tried, tested and proven Atmodoor concept and made it even better."

Available in single and double versions, the impact door's double swing action to 90° facilitates trolley and pedestrian traffic. Staff can push the doors open with trolleys or by using their elbows in an easy hands-free motion; the doors will simply swing open and close behind them. This function also has a positive impact on the environment by helping to keep interior temperatures constant, subsequently reducing energy consumption.

Atmodoor is widely used in the food, retail

and hospitality industries including supermarkets, butcheries, hotels, restaurants, pharmacies, laundries, processing plants and industrial kitchens. The impact door creates an effective barrier that separates supermarket shop floors from storage and/or butchery areas, restaurant kitchens from the diners, shopping mall back-end sections from general public areas or basically any restricted areas that require privacy.

Manufactured from solid HDPE (high-density polyethylene) material, the rugged 15mm thick doors handle high traffic areas with ease. Optional stainless steel kick plates help to protect the doors from trolley impact, further extending longevity. The doors can be used in environments with temperatures ranging from -30° to 60° C.

With a wide selection of optional extras to choose from, customers are able to customise their door solution to meet their specific application requirements. Extras include stainless steel push plates, handles and frames, bumpers and finger pinches. The doors are supplied with standard sized 15mm thick windows but can also be fitted with smaller windows for enhanced privacy. Atmodoor is available in modern light grey which is a neutral colour that blends easily into any interior.

The doors can be cleaned with high-pressure washers which is important in hygiene sensitive areas. The new Atmodoor also has fewer moving parts thereby ensuring little to no maintenance and

a long service life. The doors are supplied with two easy-mount plates and are extremely easy to install by Maxiflex's experienced team of technicians. "Atmodoor is a truly fit-and-forget solution," notes Jacques.

Atmodoor is available only from Maxiflex and compared to similar doors in the market this product is unmatched when it comes to quality and reliability. Maxiflex considers service excellence to be just as important as product quality. "Our team of highly experienced technicians based at our Johannesburg head office and strategic Cape Town, Port Elizabeth and Durban branches, support customers across Southern Africa with installation and fitment as well as parts supply, maintenance and repairs," concludes Jacques.

Maxiflex is one of South Africa's foremost suppliers of high quality industrial interior and exterior entrance solutions. In addition to impact doors, the family-owned business has, since its founding in 1990, been successfully manufacturing and supplying other in-house products including PVC strip curtains and protection screens which has earned the Maxiflex brand a coveted reputation for quality and reliability. Maxiflex has also significantly expanded its product portfolio through a number of sole distributorships including ASSA ABLOY Entrance Systems and Teckentrup Door Solutions.

For further information, Email: info@maxiflex.co.za or visit www.maxiflex.co.za

SAB affirms commitment to water sustainability with over R5 million investment



EACH year, the United Nations observes World Water Day as a means to highlight the critical importance of fresh flowing water. The international day also lobbies for the sustainable management of freshwater resources.

Locally, The Nature Conservancy, the Greater Cape Town Water Fund and The South African Breweries (SAB) have formed a promising partnership. The aim of the Greater Cape Town Water Fund is to clear 54 300 hectares (ha) of invasive species across seven priority sub-watersheds. The short term impact vision of the Greater Cape Town Water Fund will see an astonishing 55 billion litres of water replenished per year back to the Greater Cape Town region by 2025.

SAB's investment in the Greater Cape Town Water Fund is \$300 000 (approximately R5.5 million) over three years. This will help clear 320 ha of invasive species around the upper Rivierbosvlei village in the Overberg region of the Western Cape, replenishing approximately 122 million litres of water to the Greater Cape Town Region over the period.

"With water being the top ingredient in our products, saving this natural resource is not only a necessity, but also a business imperative. As part of SAB's set of sustainability goals for 2025, we have implemented various strategic water stewardship interventions to help us manage our water resources

and show measurable impact doing so. This collaboration is an exciting one. Not only is it a nature-based solution, but the impact can be tracked against a quantitative set of metrics," explains Alyssa Jooste, SAB's Africa Sustainability Manager.

Louise Stafford, South Africa Country Director at The Nature Conservancy adds, "We value our partnership with SAB as it benefits the Greater Cape Town Water Fund in multiple ways. It helps the water fund get closer to the target of removing invasive trees from 54,300 hectares and thereby adding 55 billion litres of water per year to Cape Town water supply. By harnessing the power of nature, other benefits such as creating green job opportunities and protecting biodiversity of the Cape Floral Kingdom are unlocked."

Job creation

The project funded by the brewery includes 94 specially trained high-angle technicians who scale mountains and work in remote and often dangerous terrain. Encouragingly, their efforts have included the removal of 29 000+ha of invasive plants since the launch. This has returned roughly 13 billion litres/year back to the regional water system, yet the project has a long way to go to meet its goal.

"We are so encouraged by the stories from the field – the people who are summing mountains and

clearing the area of invasive species such as pine and black wattle, and of the specialised skills development for local residents through this project. The work is demanding on the passionate team, but the rewards are unequivocal. It's great to see the project is having a real impact on their lives and a spill over into the communities that are being positively impacted," says Jooste.

The project has many social advantages including the employment of 570 people, with a focus on hiring women and young adults. And biodiversity benefits are plenty as this work is improving the state of the smallest and most unique floral kingdom in the world.

Progress to date

The SAB funded portion of the project will have cleared 50 ha of invasive species by June 2023; by December 2023 a further 100 ha; and by Jun 2024 it is expected that a further 170 ha will be clear. With this total of 320 ha cleared, approximately 122 million litres of water will be replenished back into the area.

Jooste concludes, "There needs to be a real sense of urgency about South Africa's conservation challenges, as well as an ongoing commitment to sustainable solutions. This partnership is one such example. It has provided us with a real opportunity to make a difference and we are impressed with the progress to date."



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Werner pumps provides improved operator safety in rental trucks

“OUR rental units are often used in tricky conditions and applications, such as for cleaning out blocked sewers or spillage clean-ups,” says Sebastian Werner, MD of Werner Pumps, leading local manufacturer of high-pressure jetting equipment. “This means our operators may need to get into a manhole or an oil pit to get the nozzle to reach where it needs to go, which can be a safety risk. We’ve therefore invested in a special tripod device for each truck that can be used to more safely lower or lift the operator.”

Werner explains that the tripods are designed specifically for vertical descent in confined spaces. They have sturdy but lightweight aluminium legs that lock in the open position automatically and include their own winch system, so there’s no need for a separate pulley / bracket assem-



bly. The hoist attaches directly, making set-up and pack-down quick and easy, and there’s a fall arrestor bracket that can be attached to one of the legs. There’s also a maximum height indicator for ease of use (maximum extension is 2.45m) and the legs are telescopic, meaning they take up less space in the truck once packed down.

“The operator sets up the tripod above the hatch they need to enter, and can be slowly lowered into the hole safely. There is also an accessory pul-

ley attachment that can be fixed to the tripod head, should the operator require tools to be lowered or lifted too,” explains Werner. “This makes client jobs much safer for our operators and also gives our customers peace of mind when they are renting a Werner Pumps unit. As far as we know, we are the first local business to include such a device in our rental unit. If there is interest from our customers in purchasing these tripods for their own trucks, we will investigate stocking them in future.”

Werner Pumps is continually looking for ways to improve its customer offering. With its new welding machine installed and operating, Werner says the business is able to cut down on lead times for its 100% locally manufactured jetting and vacuum trucks.

“We hope that 2023 will be a good year for us,” he says. “As it stands, we look set to double the number of trucks we manufactured in 2022, and we appreciate how many of our customers are repeat clients.”

Duty calls: make sure of the right pump for the job

SELECTING the right dewatering pump means being clear on what duty it is expected to perform, explains Justin Bawden, internal sales at Integrated Pump Technology – SADC distributor of Grindex pumps.

“Users need to ask a number of important questions when selecting a dewatering pump,” says Bawden. “This starts with the flow and pressure (head) requirements – which can be measured in litres per second or cubic metres per hour.”

Then the total dynamic head must be calculated. This is a function of the static head, which refers to the metres of vertical elevation, and the friction losses in the hose. To work out these friction losses, the user must estimate the ‘run length’ to the discharge point. The diameter of the hose, and its material of construction, must also be considered.

“The pump’s kilowatt rating and impeller type can then be suited to the flow rate and the total dynamic head on the pipeline discharge point,” he says.

Another key consideration is the size, percentage and specific gravity of the solids in the liquid to



be pumped. This will affect the design of impeller required, as well as the material of construction for the pump or wear parts. Abrasive material, for instance, will demand that the pump’s wear parts are made with suitably abrasion-resistant metals or compounds.

“Users must consider the acidity of the liquid, as this will cause corrosion if the wear parts are not constructed or coated with the right material,” he warns. The dimensions of the sump should then be examined – in terms of

its depth and the size of its opening.

The site itself may present challenges, including the type and quality of power available. Bawden advises users – especially contractors moving onto a new site – to check the voltage and phase of the power being supplied. He urges pump users to get expert advice in confirming their choice of pumps.

“Integrated Pump Technology has skilled and experienced distributors around southern Africa to advise customers on pump selection,” he says.

Sulzer extends efficiency and performance of submersible recirculation pump range

OPERATORS of wastewater treatment plants rely on submersible recirculation pumps for a variety of tasks; they are also used for tertiary treatment processes and pumping storm water. Sulzer’s range of recirculation pumps has been updated to improve performance as well as overall efficiency while retaining a robust and reliable design.

Sulzer’s product range for wastewater processes is extensive and its submersible recirculation pumps are renowned for their reliability and performance. These pumps operate round-the-clock so the recent development programme aimed to deliver further improvements in efficiency and build quality.

The latest range of XRCP recirculation pumps includes design changes that have delivered a hydraulic efficiency increase of 20%point improvement. In addition, the Premium Efficiency drive motors



have a new, range-topping 25kW unit to increase performance for larger applications.

The efficiency gains have been achieved by improving the propeller design and reducing clearances between the propeller and the shroud. As such, Sulzer is leading the field in terms of overall efficiency, which, at a time when energy costs are under heavy scrutiny, can deliver significant savings for the operators.

The frame which retains the impeller and motor has been updated to streamline the manu-

facturing process and improve strength, which supports the long service life expectancy.

The major features of the original design, such as the robust planetary gearbox, long-life bearings and triple seal system have been retained for continued peace of mind. The pumps can also be driven via a variable speed drive to optimize efficiency and enable flow rates to be adjusted according to process variations. In addition, the pumps continue to offer easy installation and removal for routine maintenance.





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KSB and sustainability of energy

AS the mining industry in Southern Africa continues to grow, there is an increasing need for pumps and valves that are bigger, more energy-efficient and sustainable.

KSB Pumps and Valves, a prominent manufacturer of pumps and valves, has been at the forefront of this movement, designing and manufacturing pumps that are specifically built to meet the needs of the mining industry. With a focus on sustainability, KSB is leading the charge when it comes to providing equipment that can handle a variety of mining conditions, is easy to maintain, and can provide a long wear life.

"In addition to our focus on sustainability, KSB also dedicates time and energy to minimizing downtime on our mining pumps which is achieved through a range of measures, including the use of high-quality materials and manufacturing processes, as well as extensive testing and quality control procedures," said Rob Bond, KSB Pumps and Valves, area manager for mining in Southern Africa. This in turn ensures that KSB pumps are built to last, with minimal need for maintenance or repairs.

Global expertise

But when issues do arise, KSB's after-sales service is there to provide support and assistance. With a global network of service centres and technicians, "KSB can provide rapid response times and quick repairs, minimizing downtime and ensuring equipment is up and running as quickly as possible," says Rob. This commitment to after-sales service is a key part of KSB's approach to sustainability, as it helps to extend the life of their pumps and reduce the need for replacement or disposal.

"One of the biggest challenges facing the mining industry is the need to operate in a sustainable and environmentally friendly manner. To meet this challenge, we have focused on developing pumps and valves that are designed to reduce energy consumption and minimize the environmental impact," says Rob.

By using the latest technology and materials, KSB has been able to produce pumps that are more energy-efficient, while still delivering the high performance that the mining industry demands. KSB's after-sales service is also focused on preventative maintenance, with a range of services available to

help customers keep their pumps and valves in top condition.

From regular inspections and maintenance schedules to training and technical support, KSB's after-sales service is designed to help customers get the most out of their equipment, while also reducing the environmental impact of their operations.

Customer centric

"We have 37 production sites in 18 countries and nine foundries on three continents. Plus, we have over 3 500 worldwide service staff ready to assist you wherever you may be. KSB Mining has proven it is well-equipped to offer our partners a complete

package of products and services. We use our expertise to make our customers' experience easy and successful. We provide exceptional and unparalleled customer service."

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Pneumatic control valve verses the self-operated control valve



Author: ATHENA GROUP

A self-operated regulating valve can not only control the downstream pressure but also control the upstream pressure. The self-operated regulating valve is actually a pure proportional regulating system with residual error. The main function of the self-operated regulating valve is to meet the upstream or set pressure value, and there is no great requirement for the flow rate. But for the regulating valve, the direct control is the flow rate. The biggest difference between these two kinds of valves is that the control valve needs external energy (such as a power supply or gas source) as the driving force, and the relative position of the inter-

ceptor in the valve is changed by controlling the instrument signal, so as to change the flow rate. The self-operated regulating valve does not need foreign energy or external control instrument signal. The pressure adjustment can be realized only by the pressure or temperature signal of the medium itself.

So we can distinguish a pneumatic control valve from a self-operated control valve in three aspects.

a. Adjustment accuracy:

The adjustment accuracy of the self-operated regulating valve basically depends on the spring and diaphragm accuracy of the self-operated valve. The final adjustment accuracy will not be better than 5% and the

general control accuracy is only 10%.

Pneumatic control valve, the final adjustment accuracy depends on the transmitter accuracy and regulator accuracy, and the regulator accuracy is very high, its influence is generally ignored.

Therefore, the adjustment accuracy of the self-operated valve is much lower than that of the pneumatic control valve. When the adjustment accuracy is high, it is not recommended to adopt the self-operated control valve.

b. Application conditions:

Control valve DCS remote control can quickly change the input signal, thus changing the opening of the valve, can also change the set value, and record the test value.

The setting value of the self-regulating valve cannot be adjusted basically, and can only be operated on the spot. The degree of intelligence is much weaker. The self-operated regulating valve is more troublesome to adjust the setting value, so it is used in situations where there is no

need to change the setting frequently, such as equipment lubricating oil supply and so on. The self-operated regulating valve should be pressed from the process medium, so it is not suitable if the medium has corrosion, particles, and so on.

c. Installation and Design:

The self-operated regulating valve has pressure control before the valve and pressure control after the valve. The design should be for the installation of pressure points to leave good spacing. During installation, the self-operated regulating valve actuator on the steam pipeline shall be installed downward, and the pressure point shall be connected to the condenser from the bottom of the pipe. The condenser shall be higher than the actuator and lower than the steam pipe to avoid steam overheating damage to the valve body. In addition, in other gases or liquids, the actuator is installed upward. Since the self-operated regulating valve is often used in gas pipes, the pressure point should be opened from the top of the pipe.

Mechanical seals ensures substantial water saving

IN a water scarce country, it is water saving that is coming to the fore as one of the most important aspects of mining and the granting of mining licences. As a single pump can spill up to 8 820 kilolitres of water per annum (7 litres/minute) it is critical to ensure that the chosen sealing solution is the right one for the pump application. Mechanical seals are preferred over traditional packing seals in diverse applications during which leakage problems should be avoided.

For over a decade Mechanical Rotating Solutions has relied on the AESSEAL® SMSS™ single monolithic stationary seal and AESSEAL CDPH Heavy Duty Slurry Seal range in successfully addressing its clients water loss issues as well as prolonging pump life.

The SMSS™ is part of the AESSEAL® modular sealing system range distributed

by Mechanical Rotating Solutions. This, combined with extensive inventory levels, ensures that any standard seal in any size or material combination is available for immediate despatch. The AESSEAL® range of single cartridge mechanical seals has been specifically designed to eliminate some of the main causes of premature mechanical seal failure. All seal faces are of monolithic, one piece, construction and therefore are less likely to distort in high and low temperature applications.

In a recent project it was calculated that 24 service pumps at a Limpopo platinum mine was losing in excess of 252 kilolitres of water per annum. Mechanical Rotating Solutions stepped in and replaced the existing pump gland packing with AESSEAL Single Cartridge Seals ensuring a lasting solution to the

undue wastage of South Africa's most valuable resource. By replacing the conventional stuffing box gland packing of the client's OEM slurry pumps with AESSEAL® SMSS™ single monolithic stationary seals, Mechanical Rotating Solutions not only addressed the excessive water loss, but also improved the reliability and efficiency of their client's plant.

Working with industry leading pump manufacturers it becomes evident that not all sealing solutions are the same. Equipment reliability improvements can be made by changing the seal environment and/or upgrading the seal design. Mechanical Rotating Solutions has been providing affordable seal conversion kits to upgrade non-AES seal designs or change the OEM equipment seal environment in order to dramatically improve seal life.

The Academy offers ECSA-approved valve training

ORIGINALLY launched in 2016, AVK Southern Africa's training academy has now certified over 700 engineers, distributors and students in South Africa's only ECSA-accredited valves training courses.

The two-day training courses consist of two Training Modules, the Valves Fundamentals Course and the Advanced Valves Course, which each contribute 2 CPD points, and is hosted at AVK

Southern Africa's purpose-built Academy in Alberton, Johannesburg.

The most holistic and intensive course of its kind in the country, it covers everything from valve testing; installation, operation and maintenance; and manufacturing methodology to applied theories of fluid pressure, fluid flow and field applications. The course material is applicable to the complete range of industries,

from water and wastewater treatment and distribution to mining, power generation and oil and gas.

Training can also be conducted at customers' premises, and has been conducted as far north as Zambia.

The Academy includes a wide variety of sample valves, as well as an innovative flow lab that provides a hands-on demonstration of valve performance in a water circuit.

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ENERGYValves is a division of EMVAfrica and a leading supplier of premium quality industrial valves. At EMVAfrica we focus on solutions. By combining our already impressive range of valves with our actuators, we are able to provide a better one-stop valve and automation service catering to a wider range of our customer's needs.

ENERGYValves

Technology helps achieve 'Water for All'

THIS year's National Water Week drove the agenda of 'Water for All', an objective which SRK Consulting has supported in many ways – one of which has been through its application of isotope technology.

Ismail Mahomed, principal hydrogeologist at SRK Consulting, has recently used isotopes to identify the source of water contamination, as a first step in resolving this threat to water security. South Africa is classified as a semi-arid country, emphasised Mahomed, and cannot afford the pollution of its scarce water resources.

In a recent address to the conference of the Network for Industrially Contaminated Land (Nicola), he explained how isotopes had proved a valuable and cost-effective technology to help resolve a contamination issue at a metals processing plant.

Fingerprinting

"A particular environment will acquire a characteristic isotopic composition or signature by virtue of the hydrogeochemical pro-

cesses involved," he said. "We can use this isotope signature for 'fingerprinting' – giving us clues to trace the source of water, and hence of the contamination."

In his case study, he explained how spatial variations in deuterium and Oxygen-18 occur in the hydrological cycle – leading to a lower proportion of these isotopes in rain that falls inland than in rain falling at the coast.

"These are among the variables we can use to identify whether the source of water is from surface dams or from groundwater – as the signature from the rainfall will be retained in groundwater," said Mahomed. "Evaporation also has an impact on this signature as preferentially lighter isotopes will evaporate from the oceans and surface water."

Tracing groundwater

One of the aspects of the case study was considering the evaporation signature of some of the ponds on the client's site – a signature which was different to the groundwater. Data

analysed during this project suggested that there was some mixing of water from different sources in the under-drain of one of the ponds. He explained that hydrology can benefit greatly from using isotopes in the tracing of groundwater, to help determine the vulnerability and sustainability of water resources.

"The technology helps hydrologists to determine factors affecting water quality such as sub-surface processes, geochemical reactions and reaction rates," he said. "It can also be used to better understand the relationship between surface and groundwater, and even to detect leaks."

The United Nations' World Water Day was also celebrated in March, with the organisation warning that countries are not making enough progress in meeting Sustainable Development Goal (SDG) 6. This goal aims to ensure safely managed water and sanitation by 2030 for all the world's population. The UN has said that there is an urgent need to accel-

erate change, by going beyond 'business as usual'.

Must move faster

"The latest data show that governments must work on average four times faster to meet SDG 6 on time, but this is not a situation that any single actor or group can solve," reported the UN. It has called upon global citizens to "be the change you want to see in the world" – by taking action on how they use, consume and manage water.

Among the approaches for accelerating action in water management that SRK Consulting has promoted in its engagements with clients is water stewardship. With water management becoming a key risk for industries like mining, consulting firm EY has rated water as the leading environmental, social and governance (ESG) risk in mining for 2023. SRK Consulting principal consultant Fiona Sutton explained that water stewardship offered a practical process for companies in mining and other

sectors to collaborate more closely with partners and stakeholders in managing their shared water resources.

"This approach is also supported by valuable best practice tools like the International Water Stewardship Standard from the Alliance for Water Stewardship (AWS)," said Sutton. "The AWS Standard offers a globally applicable framework for major water users to understand their catchment and their own water use and impacts, with practical guidance on how to effectively manage these impacts."

Water security

Growing concerns about South Africa's water security saw Finance Minister Enoch Godongwana announce – in his recent Budget Speech – planned expenditure on national water infrastructure of R121 billion over the medium term. This included R3,7 billion in municipal water infrastructure, through the National Budget facility for infrastructure.

SRK Consulting has been extensively involved in water infrastructure, including facilities for rural water supply points. Gert Nel, principal hydrogeologist and partner at SRK Consulting,

explained that these water points were vital in providing water to communities, schools and clinics which could not be reached through bulk water supply systems.

Rural support

"However, there is a need to provide more support for these stand-alone supply points, to ensure they are reliable and sustainable," said Nel. "After the installation of these facilities – such as boreholes and water treatment systems – there is seldom any backup support or funding to sustain their continuous operation."

When such facilities are planned, it is necessary to also include aspects such as training, awareness raising, mentoring and on-going support. For instance, there needs to be ready access to technical support for breakdowns, and training on how to regularly maintain or service the equipment. This will extend the life of the installations and improve their value to the community – while reducing the risk of water-borne diseases.

SRK Consulting works with both the public and private sectors in their water management interventions, and applies a range of scientific and engineering disciplines to help achieve the goal of 'Water for All'.



Ismail Mahomed, principal hydrogeologist at SRK Consulting

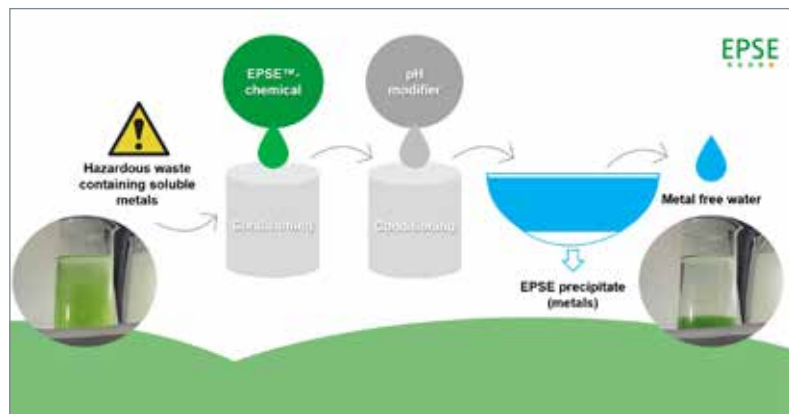


Fiona Sutton, principal consultant at the global firm of consulting engineers and scientists SRK Consulting



Gert Nel, principal hydrogeologist and partner at SRK Consulting.

The Tesla of wastewater treatment?



THIS is the description mooted by Felix Fondem, Director – International Operations – of wastewater treatment specialists EPSE, which recently participated in the African Mining Indaba, held at the CTICC in Cape Town.

EPSE has perfected a technology of treating hazardous mining wastewater containing soluble metals, which results in clean water and recovers metals with a +/- 95% efficiency ratio which can be re-used or recycled.

The technology has been developed over that past decade by Finish entrepreneur chemist Vesa Rissanen

who was originally experimenting with ways of dealing with the problem of contaminated wastewater from his galvanising and pickling business.

After successfully developing the technology, which is widely used for the original purpose in galvanising and pickling plants, additional opportunities were identified in the mining industry which has led to the technology being morphed into the establishment in 2013 of EPSE Oy (Ltd.), a Finnish based company specializing in the treatment of hazardous mining wastewater containing solu-

ble metals.

Although the company has had operations in Europe and South Africa for several years, since 2019 it has expanded its operations to South America, Central Asia, and China.

Together with new cooperation agreement with BE Group China and license agreement with Metso Outotec, EPSE has been developing the delivery process of the EPSE Method from laboratory to pilot scale and further to industrial scale up. As a result of R&D, EPSE has implemented a new laboratory scale proof of concept equipment

S.C.O.P.E, which is designed to efficiently simulate EPSE on-site industrial scale piloting equipment and demonstrate the functionality of the EPSE Method without having to transport heavy duty equipment to the customer's site.

The global green transition forces water treatment market to develop

EPSE wastewater treatment solution substantially reduces emissions from the mining industry and allows recycling of much needed valuable metals, and water resources from mining wastewaters. EPSE's unique patented innovation, the 'EPSE Method', works on all heavy and processes metals even in small concentrations, with just one single treatment, rendering the extracted metals irreversibly insoluble by producing a completely environmentally harmless and inert precipitate and purified clean water.

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Specialised crane for rescue training

SOUTH African crane manufacturer Condra has been appointed mechanical subcontractor to MH Automation for the University of Johannesburg's new Rescue Simulation Centre under construction on Doornfontein Campus.

The company is to supply the Centre with a spe-

cialised crane to replicate helicopter motion by lifting, rotating and tilting an actual fuselage. The 5 ton doublegirder electric overhead travelling crane will also position helicopter underwater escape training (HUET) simulator equipment. The Centre will train helicopter crews and emergency personnel in

aviation rescue under a wide range of simulated weather and flying conditions.

Condra will work closely with MH Automation to fulfil the contract, the latter company designing and supplying the crane's complex electronics and control systems for motion simulation. Pro-

ject handover is scheduled for July of 2023.

A four-storey-high building with six-metre-deep wave pool is already under construction at the Centre. After equipping with an AS365 Dauphin helicopter fuselage supplied by Airbus Helicopters, the crane will simulate the oper-

ational conditions of a machine hovering over either water or land by manipulating the lifting points of the suspended airframe.

UJ's Rescue Simulation Centre will be Africa's biggest search-and-rescue training facility, delivering at a single site a broad spectrum of staged sit-

uational environments, including rescue from a submerged vehicle and/or airframe. MH Automation's electronic systems and Condra's overhead crane will be key to these simulations, complemented by replicated lightning, wind, and rain. A high-speed fan fitted above the overhead crane will deliver

pseudo rotor downwash to make training conditions as close to real as possible. There will be a wave simulator to produce the disrupted water surfaces of flood conditions.

The AS365 Dauphin airframe and HUET simulator will be stored in tandem on a raised platform above the pool area, the crane positioning them as required.

Condra's contract provides for the supply of several key components to the Rescue Simulation Centre: the crane itself with hoists to simulate helicopter motion in the hover, the crane gantry, the mechanism for helicopter rotation, and fans and lighting for draught and different daylight conditions.

Additionally, Condra will fabricate frames for fitting to the helicopters to facilitate their hoisting. Crews and rescue personnel will board the helicopter, which the crane will then lift into position as required, manipulating it to simulate the motion and rotational movement of helicopter flight by means of the rotating mechanism and the hoists that will lift and lower the frame's ends.

Control of all airframe movement from the Centre's floor will be by radio remote joystick via IGBT (insulated gate bipolar transistor) variable-speed drive controls fitted to the hoist motors and provided by MH Automation.

MH Automation will also design and supply all other controls for safe and reliable crane operation.

With the Rescue Simulation Centre contract involving several engineering disciplines, there are ongoing meetings between campus staff and representatives of Condra, MH Automation, Airbus and the South African Police Service Air Wing, so that aviation technology is correctly integrated with the disciplines of mechanical and electrical engineering to make the simulated scenarios as close to reality as possible.

The AS365 Dauphin airframe and HUET are expected to arrive in April, after which the crane will be tested at Condra's workshop prior to installation and commissioning.

Immediately prior to the Centre's official opening, Condra and MH Automation will train the client in crane operation, including how to exchange the different airframes used for rescue training and underwater escape.



Condra cranes and hoists are without equal in their quality, performance, reliability and overall lifetime cost. Operating data and the experience gathered from installations around the globe are today incorporated in all Condra products, the endurance of which has been proven in highly corrosive and abrasive environments, and under wide extremes of temperature, humidity and altitude. Technical support, service and spare parts delivery are guaranteed worldwide.



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Plastics' role in ensuring SA's water infrastructure and security

"IN 2015, the world made a global commitment to achieve the Sustainable Development Goals (SDG) 6, which aim to ensure that everyone contributes to water and sanitation management by 2030. Today, eight years later, the sad reality is that the crisis has not yet subsided. This is especially true in South Africa, where far too many people continue to be denied a basic human right - the right to safe drinking water and adequate sanitation," Jan Venter, CEO of SAPPMA, explains.

According to the most recent data, the world is still frighteningly off track and nowhere near meeting its goals on a global scale and governments would need to work four times faster to meet SDG 6.

The risk of water shedding in South Africa

Over the past decade, SAPPMA has repeatedly raised the alarm about the fact that South

Africa's water infrastructure is aging and that concrete or steel water pipes installed in the 1960s are now long overdue for replacement.

Despite numerous disruptions in water supply and the increasing risk of water shedding, the country's leaders and citizens maintained an air of complacency for the longest time. On a more positive note, SAPPMA says it appears that the Government has finally recognized the dire state of the country's water infrastructure, and that the National Budget Facility for Infrastructure had approved municipal water infrastructure projects worth R3.7 billion. The government has promised to spend more than R121 billion on water infrastructure in the medium term.

"We can only hope that the money is finally being used for its intended purpose and that it is making its way to our plastic pipe

manufacturers," Venter says. He emphasized that this has become an urgent matter following a cholera outbreak in Gauteng in early March as a result of inadequate sanitation and insufficient access to safe drinking water.

The important work of the plastics industry in cleaning SA's water sources

Anton Hanekom, Executive Director of Plastics SA, confirms that plastics play a major role in providing people with safe and clean drinking water. "Apart from being extensively used in pipelines and underground water infrastructure, plastics are also used in plumbing accessories, water storage units and even buckets or wheelbarrows used in remote areas to transport clean drinking water back to homes".

He also emphasizes the important work done by the plastics industry in ensuring

that South Africa's water sources are clean, uncontaminated, and free of litter.

"To put it simply, polluted water is contaminated water. Research has revealed that land-based waste accounts for more than 80% of the litter found on South African beaches, in our oceans, and in other bodies of water. For this reason, we have been making concerted efforts over the past few decades to devise solutions that will mitigate this problem".

Plastics SA has launched and is supporting a number of projects across the country in which they work closely with local governments, non-governmental organizations (NGOs), community organizations, and businesses to keep South Africa's river catchment areas and water sources clean of visible pollutants. These include ongoing beach and river clean-ups, supporting the development of collection and sorting infra-



structure assisting with litterboom projects, and launching numerous education and awareness campaigns for local communities across the country in order to address waste in the environment in a proactive manner.

"We are grateful for the active participation of local community groups, civil society and municipalities as well as the support of major

industry role-players and the various plastic industry Producer Responsibility Organisations (PROs) to help us achieve the amazing results addressing plastics pollution in our river catchments. Many of these industry leaders are also signatories of Operation Clean Sweep (OCS), a global voluntary commitment programme aimed at preventing the loss

of plastic resin in the marine environment, such as pellets, flakes, and powders. This is yet another example of the plastics industry going above and beyond to help the global fight against the world's water crisis," Hanekom says.

For more information, visit www.plasticsinfo.co.za or www.sappma.co.za

IFAT Africa comes at an opportune time



Image credit: Killarney & Rosebank Gazette

AS parts of Johannesburg and greater Gauteng are experiencing what can only be described as water shedding, Johannesburg Water's manager for innovation and technology, Dr Zakhele Khuzwayo dropped a bombshell on a recent eNCA interview when he revealed that the Metro's aging infrastructure and neglect of basic maintenance would require a R120bn investment to provide the "World Class African City", with world class water infrastructure.

IFAT Africa is a forum and an exhibition on environmental technologies, which takes place once a year in Johannesburg. An offshoot of the IFAT

in Munich, it offers the full range of environmental technologies and services with a comprehensive product portfolio ranging from simple to technologically advanced machines and solutions in the areas of water, sewage, refuse, recycling and energy conservation. Especially in Africa investment in infrastructure and water supply are urgently needed. Growing populations, economic expansion, scarce water resources and extensive agriculture confront the government with major challenges. In addition, the amount of waste is enormously rising, especially in the mining industry, which is an important

contribution payer to waste. Here action is required. Since the environmental management in Africa is still in its infancy, the IFAT Africa presents innovative technologies and solutions and ensures a high-quality knowledge and information exchange. The IFAT Africa is only accessible to trade visitors and offers international companies a good introduction to the African development market of environmental technologies.

The IFAT Africa will take place on 3 days from Wednesday, 05. July to Friday, 07. July 2023 at Gallagher Convention Centre in Midrand.

ERWAT pursues greater efficiency with weg motors

WEG premium efficiency electric motors from Zest WEG are assisting South African water utility ERWAT to respond positively to rising electricity costs at its water treatment plants.

The roll out of WEG's reliable W22 low voltage (LV) motors at ERWAT's plants will also contribute to improving the general performance of the plants, according to Dillon Govender, sector specialist in public sector business development at Zest WEG.

"Our WEG W22 motors are constantly improving in terms of their energy efficiency," says Govender. "Not only have we made our WEG IE3 top premium efficiency motors in this range available to the local market, but now also offer our WEG IE4 super premium efficiency motors at no extra cost."

Key to ERWAT's decision to install these motors was Zest WEG's local assembly plant and high levels of local inventory which ensures quick and reliable supply. Another factor was the standard five-year warranty that Zest WEG provides with the motors. The company also equips the motors to withstand the demanding conditions of operating within the water sector, he says.

"It is important that

our W22 motors are readily available 'off the shelf' to ERWAT, so there is no delay in delivering the equipment as and when they need it," he explains. "Our warranty provides peace of mind, giving ERWAT the certainty that these motors will provide maximum uptime for greater plant productivity."

Govender highlights the value of staying abreast with energy efficiency gains in motor technology as a high proportion of the total cost of ownership is the running cost - which is mainly the cost of electricity.

He notes that the energy savings when using the WEG IE4 super premium efficiency motors reduce their payback times to as little as a year. From this perspective alone, it does not make commercial sense to keep repairing older, less efficient motors.

"In addition to reducing energy consumption, these WEG LV motors also reduce the carbon emissions related to electricity generation in South Africa," he says. Migrating from the W22 IE3 model to the W22 IE4 is also seamless, as the critical dimensions do not change. The WEG W22 IE4 super premium efficiency motors are designed according



WEG IE3 motors mounted vertically on mixers for downward agitators which are used for ensuring solids entering the anoxic basin/zone do not settle at the bottom.

to the DIN EN 50347 standard which means it can replace an IE1, IE2 or IE3 motor with similar frame sizes, and as a result no modifications are required when mounting the motors to the base plate.

To operate effectively in a water treatment plant, the motors must also withstand the wet, damp or corrosive environment. This could require solutions ranging from the use of specialised epoxy paint and internal tropicalisation measures, to the supply of canopies for vertical applications.

"Water treatment

plants in South Africa also have to contend with the disruption of regular loadshedding, which can reduce their ability to treat the required volumes each day," says Govender. "This means that these operations can no longer afford unplanned downtime."

He concludes that the installation of WEG's W22 LV motors will ensure not only higher energy efficiency, but also greater reliability for smoother and trouble free pumping.

Visit: www.zestweg.com for more information.

Safety maintenance and shutdown services since 2010

THE Sekta Group of companies has a proven track record in safety and reliability in plant maintenance and shutdown services since 2010. Experience gained over the past 13 years is reflected in its full understanding of the pressures, risks, shutdown requirements and processes.

Shutdown support has been provided to the likes of Sasol, Eskom, Engen, NATREF, Astron, SAFRIPOL, SAPPI, OTMS MOGS, with a team of up to 3 500 skilled workers.

Recognising the major challenges associated with shutdowns, Sekta Group's principle approach is one of zero harm, realising that its clients are already juggling a plethora of risk, and ensuring that its solutions lighten the load.

Whether it's a turnkey solution including project management and planning, mechanical support, or the provision of specialised services, the Sekta Group of companies can support a shutdown of any scale, throughout South Africa or Southern Africa.

Services provided include:

- Industrial Cleaning including high pressure cleaning, vacuuming, chemical cleaning and catalyst handling
- Scaffolding, rope access solutions
- Hot and Cold Insulation,
- Abrasive Blasting
- Industrial coatings / corrosion protection
- Concrete Rehabilitation and repairs
- Fire Proofing and Industrial Fire Prevention and Suppression
- Epoxy and Specialised Floor Coating
- Repairs to Marine Vessels
- Specialised Mechanical Services
- Conveyor and rotating equipment maintenance
- Hot Work Maintenance and Repair Services

- Turnkey Solution Provider

Its HSE (Health, Safety and Environmental) objective recognises clients as

partners in a sustainable strategy to manage risk. In the past 12 months executing shutdowns nationally, Sekta have proudly achieved a LTIFR

(Lost Time Injury Frequency Rate) of 0.04. The Group has ISO certification for integrated management system ISO 14001, ISO 45001 and

ISO 9001 through the relevant certification bodies.

For further information visit: www.sekta.co.za



let's build it together

Sekta is an industrial services force that reflects the maturity of our society and a genuine understanding of the pivotal role we play in it. We provide services to the energy, petrochemical, oil and gas, mining, construction, food and beverage sectors. Our services support an industrious nation and the African continent, so that we can continue to develop in prosperity and pride.

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 Epoxy and Specialised Floor Coatings	 Industrial Cleaning Vacuumation and Waste Removal	 Fireproofing, Industrial Fire Prevention and Suppression	 Repairs to Marine Vessels



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Seventy-seven years of one-stop storage, racking and shelving solutions

ACROW – established in 1946 – is a world-wide manufacturer of storage and retail solutions including racking, shelving, gondola and its accessories, offering a technologically advanced production facility providing a complete shop fitting solution from design, development, manufacture and installation.

Acrow's name is known throughout the world and here in South Africa is one of the largest storage and construction equipment manufacturers where tailor made solutions to suit any storage and retail requirement products conform to the highest standards of quality and safety.

Continuous research and development is at the core of Acrow's philosophy and understanding that each customer has their own requirements and workflows. Acrow is

committed to providing solutions which match customer's needs.

A highly capable in-house engineering and design team provides bespoke solutions to solve logistical equipment challenges, complemented by committed initial and after-sales service personnel.

Acrow's manufacturing is built on agility and the ability to prototype and build new concepts in short time periods, based on an extensive standard product range which allows an infinite number of custom made designs, making any project possible.

All Acrow products and systems are designed to the latest design standards and principles and adhere to the strictest norms imposed by these systems. All products are developed in accor-

dance to its accredited ISO 9001:2015 standards.

With manufacturing at the heart of all Acrow's products, products are produced with the latest technology across its two manufacturing centres in Johannesburg and in Italy.

Branches in Durban and an expanded facility under construction in Cape Town, are staffed with skilled teams of experienced artisans and technicians who ensure con-

tinuous high quality standards are met. Combining people and technology, providing all in-house solutions imaginable, with a dynamic team of craftsmen and visionaries, is the strength of Acrow's manufacturing.

Acrow's after-sales service ensures that the environment always meets the highest safety requirements and training can be provided to ensure that all safety standards are adequately met.



Scalable automation that optimises core warehouse functions

RATHER than upgrading or installing an all-new WMS (Warehouse Management System) to adapt operations as your business grows and/or adjusts to shifting demands, many DC operators, can achieve best-in-class performance faster by adding AI-based process optimisation and advanced execution software alongside their existing WMS.

In this approach, the WMS provides core warehouse management and inventory control functions that are extended by modular, flexible best-in-breed execution and optimisation software. This "good-enough" WMS strategy reduces risk, accelerates digital transformation, improves long-term flexibility, and gives companies immediate access to the technologies they need to compete for the long haul.

For example, several years ago, one Lucas customer, a leading distributor of branded medical, surgical and disposable products, predominately distributing to acute care or hospital facilities throughout the United States, was challenged to improve productivity and reduce the costs for picking low unit of measure (LUM) items, and to increase picking accuracy

compared to their existing RF-based process. Utilising Lucas' voice-directed, AI-driven optimisation engine Jennifer to supplement their legacy WMS, they were able to enhance overall DC productivity across all activities, including receiving, replenishment and other tasks that were unchanged, by greater than 10 percent.

DCs looking to add advanced warehouse optimisation capabilities should explore seeking best-in-breed solutions that supplement their current WMS, rather than replacing or upgrading a WMS that otherwise meets their current needs. This "good enough" approach preserves significant previous investments in WMS systems, while gaining access to new capabilities that can be delivered more quickly and economically than a WMS upgrade.

By learning about alternatives to replacing their WMS, operators may be able to save time, reduce risk, and accelerate their return on investment.

For more information, visit www.lucasware.com. Reprinted from Warehouse and Logistics News: <https://warehousenews.co.uk>

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Semigration – the reasons why South Africans are relocating to the Western Cape

SA Furniture Removals Group (Pty) Ltd who operate several moving companies that are relocating 100's of families every month from Gauteng, Mpumalanga, KZN and other provinces to Cape Town & the Western Cape. SA Furniture Removals are able to track, communicate & obtain feedback from its clients on what are their latest motivations to relocate their homes & lives to Cape Town & the Western Cape.

Semigration to The Western Cape has become a South African trend and the reasons are all accumulating with a big momentum shift starting during Covid. Better organisational governance, service delivery, security, schools and better-quality lifestyle are all significant contributors but the Western Cape's proactive governance in finding real solutions to



solving the load shedding crisis is fast becoming the most significant reason for semigration to the Western Cape, says a consultant from one of the most highly rated moving company brands. He also says that the nucleus of the relocations is destined to Cape Town's north-

ern suburbs, Helderberg and Garden Route regions.

The Western Cape has several initiatives for renewable energy:

- Renewable Energy Independent Power Producer Procurement (REIPPP) programme: The

Western Cape is participating in the national REIPPP program, which aims to procure 3 725 MW of renewable energy by 2030. The programme encourages private investment in renewable energy projects and has led

to the development of several wind and solar farms in the province.

- Solar water heaters: The Western Cape government has a programme that provides subsidies for the installation of solar water heaters in low-income

households. This program aims to reduce electricity usage and promote the use of renewable energy.

- Energy efficiency: The Western Cape government has launched an energy efficiency programme to reduce the energy consumption of public buildings, including schools, hospitals, and government offices. The programme aims to reduce the province's energy demand and promote the use of renewable energy.
- Green economy: The Western Cape government has identified the green economy as a priority sector for economic development. The province is focusing on promoting renewable energy, energy

efficiency, and sustainable agriculture to create jobs and stimulate economic growth.

- Solar PV installations: The Western Cape government has installed solar photovoltaic (PV) systems on several public buildings, including schools, hospitals, and government offices. These installations generate renewable energy and reduce the province's reliance on fossil fuels.

These are all initiatives that mover's sight, that collectively will help create the momentum to grow South Africa's economy. The Group's consultant responsible for Furniture Transport around the country says that there is particularly high growth from its operation - Pretoria Furniture Movers.

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Workers like robots' help



ALTHOUGH initially wary of automation, warehouse workers have grown to recognize the value of robots in making their work easier, according to research conducted recently by the robot manufacturer Lucas Systems.

A survey of 500 on-floor warehouse and fulfilment center workers throughout the United States found that three out of four of those polled were willing to say that they consider robots to be their friends – not their foes – when they are doing their jobs.

"They trust robots as a partner to help them do their jobs better," Lucas pointed out. "Workers value robots as colleagues, mainly because of their ability to help reduce physical stress, and achieve better performance in picking and accuracy."

Lucas said this is primarily because of robots' contribution to reducing the workers' physical stress and driving improved performance regarding picking and packing accuracy.

Having tech as part of the job is important to Gen Z workers who ranked that even higher than pay. The survey found that 74% of workers said they are willing to trade pay for better tech to do their jobs.

"These are all signs that tomorrow's warehouses will need to operate differently than they do today," explains the Lucas company's Chief Marketing Officer Ken Ramoutar.

"Gen Z workers expect to use modern technologies like they use at home. Handheld and personalized, tech must be easy to use and must help them save time and mitigate exertion."

Also, 74% are at least somewhat likely to take a pay cut to work at another company with more technology tools to help them do their job, including more than half (52%) who held this was extremely or very likely, according to the survey.

Originally published in <https://acwi.org/2023/03/10/workers-like-robots-help/>

When steel bearings aren't tough enough

IN recent years, igus polymer bearings have emerged as a reliable alternative to traditional steel bearings, offering a wide range of benefits.

These include the fact that polymer bearings are maintenance-free, self-lubricating, and corrosion-resistant, making them suitable for use in harsh environments. They are also lightweight, wear-resistant, and offer excellent shock absorption, making them a popular choice for use in various applications.

The history of bearings dates back to ancient times, and while steel bearings have been the norm for a long time, they are not without their limitations. Defects and overloading can cause fractures in steel bearings, prompting the need for innovative solutions like polymer bearings. With their numerous advantages, it's no surprise that polymer bearings from the global leader in polymer bearings, igus, are gaining popularity

in various industries.

Prime solution

Juan-Eric Davidtz, product manager for igus says, "The proof is in the pudding; we can prove that after using polymer bearings your production line would run better, faster, cheaper and longer. Bearings are such a fundamental part, without them, most operations will come to a halt, which directly impacts the manufacturing process.

Bearings are a part of almost every machine that transfers motion and its no wonder that the world is turning to maintenance and lubrication free bearings that far outlast traditional alternatives. Here are benefits of using igus motion plastic bearing:

- Maintenance-free because of the low coefficient of friction between plastic and stainless
- Noise Control: Plastic has the inherent ability to dampen vibrations

- Self-lubricating: Steel bearings require lubrication to reduce friction, dissipate heat and prevent corrosion. Due to the design of plastic ball bearings, there is no metal-to-metal contact, which results in less friction
- Cost saving: with product integration a plastic bearing can be mounted into other components or parts such as plastic wheels, pulleys or housings. This integration lowers assembly time and results in the use of fewer parts, increasing affordability
- Reduce material waste: through custom designs that are readily and inexpensively made. This allows engineers the freedom to design the bearing around the device
- Corrosion-resistant: ball bearings can be utilized in environments destructive to conventional

bearings. Plastic, by its nature, does not corrode. Igus bearings can operate in hostile environments such as seawater, silicon wafer processing, plating solutions and swimming pools

- Cleanliness: Plastic bearings generally operate cleaner than metal bearings because they do not need lubrication, they are resistant to corrosion, and they can be washed down which makes them a viable option for cleanroom environments, and wash-down applications
- Weight saving: Lightweight: Plastic is five times lighter than steel, thereby reducing the weight and energy to move them
- Wear-resistant Non-Magnetic: Plastic ball bearings become completely nonmagnetic when fitted with polymer, glass, or nonmagnetic 316 stainless balls. They are ideal for use in MRI



An example of igus polymer bearings.

X-ray equipment or sensors where there cannot be magnetic distortion

- Shock Absorption: Plastic absorbs shock loads better than metal due to its elastic nature. Many conventional ball bearings fail due to the brinelling of the raceway, i.e. balls denting the raceway

History of bearings

Sticking to what you know is a no-risk no-

reward way of conducting business however when looking at the history of bearings dating back to ancient Egypt around 2,600 BC bearings have been long overdue for an update.

From uses in bicycles to planes until in 1794 the ball bearing as we know it was patented to a British inventor and ironmaster, Philip Vaughan.

Since then, ball bearings evolved tremendously in size, shape movement, and variety

of applications in addition to different types of steel.

However, defects such as microcracks, shrinkage cavities, bubbles, large foreign objects, overheated tissues, and local burns of bearing parts also cause defects or overload fractures where the reason why engineers had to come up with innovative solutions. Enter the latest innovation, the most advanced polymer bearings from igus.

Maersk pilots warehouse automation solution



ACCORDING to Maersk, this product can climb on the existing warehouse racking to sort, pick and replenish cartons directly to/from any spot in the rack.

Maersk and BionichIVE have been working for four months on a pilot designed to assess automation processes that sort, select and put away packages and can navigate warehouse floors using built-in cameras and sensors, moving between people and objects.

According to Maersk, this product can climb on the existing warehouse

racking to sort, pick and replenish cartons directly to/from any spot in the rack.

The evaluation is being conducted at a Maersk warehouse in Mira Loma, California and is expected to last another four months.

In addition, the mobile units are battery-operated, running a smart-power consumption module which automatically replaces its power packs.

Erez Agmon, global head of innovation for Logistic and Services at Maersk, commented, "By integrating BionichIVE's SqUID solution into

our warehouse operations, we will be able to optimise processes and better serve our customers in a rapidly evolving market."

SqUID's software integrates into warehouse management systems, providing real-time inventory data.

Maersk claims that the global warehouse automation market is expected to grow at a compound annual growth rate of 14.2% through 2026.

Reprinted from: <https://www.maritimgateway.com/maersk-pilots-warehouse-automation-solution/>

Premium grid couplings accommodate motor – machine misalignment

BMG's upgraded Fenagrid Premium grid couplings are dimensionally compatible with other leading power transmission brands, which means couplings can be interchanged quickly, with a minimum loss of production time.

Fenagrid Premium taper grid steel flexible couplings accommodate angular, parallel and axial misalignment between driving and driven machines. These grid couplings also absorb considerable torque overloads, achieving smoother running, with consequent reduction of wear and tear on machinery.

"The new Fenagrid Premium grid couplings are the result of the upgrade of multiple aspects of the previous generations and include dimensional, material and manufacturing improvements. These hubs are manufactured from a high-strength hardened alloy steel, to withstand extremely high torque loads," explains Gavin Kirstein, Business Unit Manager, BMG's Power Transmission division.

"Fenagrid Premium taper grids have a trap-

ezoidal cross-section and are tempered to spring hardness and through a shot-peening operation, the surface molecules are compressed by high-velocity steel micro-beads. The compression of molecules results in increased strength and flexibility, which means higher torque ratings and a longer L10 lifetime. The grids are easily identified by the edging of the word premium."

Fenagrid Premium grids have been designed to float, rock and pivot within the hub teeth. This provides generous capacity for misalignment, without producing detrimental axial loads on bearings that occur when couplings are misaligned.

These grids are also able to deflect torsionally when subjected to normal shock or vibratory loads. The taper grid system is a shock absorber for rotary motion, relying on the predictable resilience of the grid for torsional flexibility.

Due to their spring hardness and flexibility, these grids absorb impact by spreading the energy over time.



BMG's upgraded Fenagrid Premium grid couplings are dimensionally compatible with other leading power transmission brands, which means couplings can be interchanged quickly, with a minimum loss of production time.

They also dampen vibration and reduce peak or shock loads experienced by the entire mechanical system.

BMG's Coupling Grease HD has been specifically formulated for gear and grid couplings which are subjected to the combined action of high load, shock load, water and elevated temperatures.

This heavy-duty coupling grease operates efficiently in harsh environments and has excellent extreme pressure properties that provide a stable and adherent film, with resistance to mechanical action and water. This grease also has excellent anti-corrosive properties for ferrous

materials, as well as copper alloys, bronze and brass. Components in the grease, including sulfonate complex calcium soap and solid lubricants, enable safe operation in a wide temperature range, especially at high temperatures. Added to this, excellent physical and chemical properties reduce lubrication intervals, prevent wear and tear and extend the service-life of equipment. This specialised grease is available from BMG in 500 gram and 5-kilogram containers.

For further information contact: Gavin Kirstein, Business Unit Manager, Power Transmission division, BMG, Email: gavink@bmworld.net

Opinion Piece

How domestic gas production can help mitigate SA's energy crisis

By NJ Ayuk, the Executive Chairman of the African Energy Chamber (www.EnergyChamber.org) and Author of A Just Transition: Making Energy Poverty History with an Energy Mix.



SOUTH Africa's fuel and energy sector is truly in trouble, with power shortages and blackouts worse than ever before. There are some hopes for relief, including efforts to find new sources of fuel for thermal power plants (TPPs). On the one hand, South Africa possesses large offshore natural gas reserves in the Outeniqua basin and may be able to find more in its section of the Orange basin and

elsewhere. On the other hand, it shares borders with other two future gas producers – Namibia and Mozambique, both of which have sizeable reserves and smaller populations than South Africa – that may be willing to export some of their bounty under the right conditions. Nevertheless, these solutions are still some distance away, given that it will take years to bring gas from these large-scale projects to market. In the meantime, South Africa should not lose sight of the fact that it has other solutions at hand. **Kinetiko Energy: Onshore gas supplies to local power stations** One of them is Kinetiko Energy, an Australian company that is working to develop conventional gas reserves in southern Africa. Its primary focus is the Amersfoort-to-Volksrust region, which focuses on a large gas deposit in the Mpumalanga province. Kinetiko is still working to determine exactly how much gas

its licenses contain, but it is optimistic in light of the fact that the area has long been known to hold very high-quality methane in shallow sediments and coal-beds, and it has estimated its 2C resource at 4.9 trillion cubic feet (138.8bn cubic meters). On January 30, 2023, the company issued a statement which included some insights into the well's geology, but it also quoted Kinetiko CEO Nick de Blocq as saying that 271-23C was in a favourable geographic location. Specifically, he drew attention to the well's position in Block ER271, close enough to the Majuba TPP to represent a field which could supply it with gas in addition to coal, its usual fuel. He pointed out that the Lily Pipeline runs through all of Kinetiko's current blocks, including Block ER270. This is South Africa's largest gas conduit, which transports gas from Sasol's Secunda plant to coastal cities and to industrial consumers in the Kwa-Zulu Natal region. "The

proximate location of our southernmost boreholes in ER270 to the steel-smelting and manufacturing centre of Newcastle could mean a simplified logistical solution to get the gas to an increasingly hungry thermal industry market," he stated. It has yet to determine exactly when it can begin commercial production, having started the activities required to evolve their Exploration Right into a Production Right, and it is busy negotiating with midstream players who bring downstream off takers and financing. **Creative ideas and environmental considerations** Indeed, if South Africa was willing to take steps to open up more of the onshore basins that might hold gas – such as the Karoo basin – it would be giving investors a signal that it was ready to entertain new solutions to a problem that has persisted for far too long. If South Africa is going to develop an onshore gas industry,

the government ought to be making plans to develop the regulatory regime accordingly, and investors ought to be keeping environmental concerns front and center as well. But there's good news: Some of them are already doing so. **Renegen: Demand for gas beyond power generation** Renegen has been working to develop three conventional gas fields in Free State – Theunissen, Virginia, and Welkom, which are collectively estimated to hold nearly 407 billion cubic feet (11.53 million cubic metres) of conventional natural gas in proved and probable (2P) reserves. It is keen to monetize these fields because they contain relatively high levels of helium – a commodity that is both valuable and rare – as well as gas. As such, it has worked to transform its initial compressed natural gas (CNG) initiative into a larger-scale and considerably more ambitious liquefied natural gas

(LNG) project. In September of last year, Renegen started up its onshore gas liquefaction plant, becoming South Africa's very first producer of LNG. In a launch statement, it noted that the plant's output would help reduce the country's carbon footprint by making a new type of fuel with lower emissions intensity than diesel available for trucking and other commercial uses. It was referring to a deal signed in the summer of 2020 with Total South Africa, a subsidiary of the French major TotalEnergies, on joint marketing and distribution of LNG. Under that deal, Renegen agreed to deliver some of the LNG from the first phase of its plant to Total-branded filling stations along the N3 the major highway connecting Durban and Johannesburg, for sale as a long-haul trucking fuel. It also pledged to make more LNG available for distribution and sale via Total stations along other key highways once the second phase of its plant came online, say-

ing that expanding the use of LNG in the road freight sector would help curb the rise in carbon emissions. It has also targeted industrial customers, and in August 2021 it signed a five-year supply agreement with Ardagh Glass Packaging (previously known as Consol Glass), a supplier of glass packaging materials based in Johannesburg. Then in February 2022, it followed that with another five-year deal – this time, with Ceramic Industries Group, based in Vereeniging. Both Ardagh and Ceramic Industries are subsidiaries of Italtile, based in Cape Town; Ardagh has said it intends to use the LNG to replace liquid petroleum gas (LPG) at its Bellville operation while Ceramic Industries will use LNG to supplement the gas supplies it receives via pipeline. Renegen made its very first shipment of LNG to Ardagh's Bellville site in December 2022 after setting up

Continued on P27



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Addressing energy access a key discussion point at Enlit Africa in Cape Town in May

"Africa at intersection between affordability, reliability and access to power"

THE challenge of improving access to energy will be addressed at the upcoming Enlit Africa conference and expo when it returns to Cape Town from 16–18 May 2023. On 17 May, Day 2's keynote session focuses on Africa's just energy transition and the importance of ensuring that energy access is a central outcome of that transition.

"We believe that the issue of energy access cannot be ignored," says the event's content director Claire Volkwyn, adding: "with figures predicting that between 700 million and 900 million are currently without energy access in Africa, this is a crisis that must be addressed."

In a report released by UNCTAD (United Nations Conference on Trade and Development) on 21 March, some of the real-life impacts of the lack of energy access, such as implications for health, education, poverty reduction and sustainable development, were addressed. The report, "Commodities at a glance: Special issue on access to energy in sub-Saharan Africa", warns that without additional efforts, the region's population without access to clean fuels could increase to over 1.1 billion people in 2030.

"Access to a reliable and quality energy supply is vital to the economic development of any country," the report says. "It drives industrialization, boosts productivity and economic growth, spurs human development, and is crucial to achieve almost all of the United Nations Sustainable Development Goals (SDGs)".

Africa at energy intersection

"Africa has arrived at an intersection between affordability, reliability and access to power", Volkwyn states; "while this position presents incredible opportunities and inspires innovation, at the same time, it also creates some tension, particularly regarding the SDGs and the energy transition".

She explains: "Africa's just energy transition ambitions are being tested in the face

of a global recession, rising poverty, unemployment and falling revenue. In addition to the staggering sums of investment that have been identified for the technology and headline achievements

of the energy transition, Africa is facing the reality that it will likely not meet SDG7, which aims to ensure access to affordable, reliable, sustainable and modern energy for all".

"But there is also lot to celebrate" Volkwyn says, "and we will share many success stories and showcase new innovations. This year's programme features an incredible line-up

of experts from across the African continent who will share their winning strategies and projects with the 5 000+ expected delegates and visitors. Another huge vote of the confidence in

Africa's energy sector will be the exciting and vibey expo floor with 250 suppliers of expert technologies and services, including country pavilions from Belgium, Brazil, Canada, China, Ger-

many, India, Taiwan and the USA.

For more information about Enlit Africa, visit the website: <https://enlit-africa.com/> or phone +27 21 700 3500



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Off-grid power solution underway at residential estate

RESIDENTS of Coral Beach Estate, an upmarket residential estate in East London, has been struggling with load shedding and power outages due to South Africa's energy crisis as well as the vandalism of their power infrastructure. Some outages have lasted over eight hours, causing major disruptions to the residents' lives. IMPOWER has responded to this crisis by developing an off-grid power solution through a bespoke 20-year "Power Purchase Agreement" model, which allows the Homeowners Association to pay for the power on a pay-as-you-use basis with zero upfront cost to them. The solution has been developed, engineered, and is currently under construction by IMPOWER.

The solar solution will have a capacity of 388 kWp, while the battery energy storage solution (BESS) will have a capacity of 1 458 MWh. The energy system includes an axis tracker system allowing the solar panels to follow the sun's daily arc, maximizing yield per square metre of land used.

This off-grid power solution will provide power independence for The Coral Beach Estate, effectively eradicating load shedding. The cost of the solar and battery power will match that of Eskom in the first year; however, its annual escalation rate is expected to be well below the NERSA increases. Said Jay Naidoo, CEO of IMPOWER "We believe that this is the perfect solution to the energy crisis faced by many, as it addresses all the typically insurmountable problems, namely, high project capex/investment costs, development and engineering risks/complexities, power unavailability, and the high-ever increasing cost of energy."

Construction of the project began in the first week of January 2023 and is expected to be completed and commissioned by the end of June 2023. Charles Pittaway Snr, the Chairman of the Coral Beach Homeowners Association had this to say, "We are delighted to know that our estate will soon be load shedding free, our residents will soon be enjoying the benefits of solar and battery power."

For more information about IMPOWER, please contact: Jay Naidoo, Email: Info@impower.solar



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editor@cbn.co.za

How domestic gas production can help mitigate SA's energy crisis

Continued from P24

turn-key delivery facilities per the terms of its contract.

At that time, the company said it had received expressions of interest in its LNG from multiple South African businesses, including independent power producers (IPPs), large-scale industrial manufacturers, and heavy logistics operators. It did not name any potential new clients, and since then,

its efforts to drum up new business may have been overshadowed by the escalating energy crisis.

Gas will help South Africa find ways to produce the additional electricity it needs to provide all of its citizens with reliable and secure power — both in the longer run as new offshore fields come online and in the shorter term as companies such as Kinetiko

and Renegen develop onshore resources.

But South Africa could also use gas for other purposes. It could use gas as a substitute for diesel in long-haul trucking — and thereby reduce emissions in the transport sector. It could introduce LNG as a fuel for industrial customers — and thereby reduce emissions in that part of the economy, while also reducing the drain on the national trans-

mission grid. It could create markets that can be sustained and made profitable even beyond the time when (I hope) the current crisis will be nothing but a memory.

So let's give South Africa's smaller-scale gas producers a chance to grow.

For a copy of the "State of South African Energy Report" Visit <https://EnergyChamber.org> for details.

New single-phase UPS for IT networks and Edge computing applications

VERTIV a global provider of critical digital infrastructure and continuity solutions, has introduced the Vertiv™ Liebert® GXE, an online double-conversion single-phase uninterruptible power supply (UPS) available in 6 and 10 kVA power ratings in tower or rack-mount configuration. The system is designed to provide reliable power to distributed IT networks and edge computing applications in various industry segments such as enterprise, government, manufacturing, finance, education and retail.

The Liebert® GXE performs with high efficiency up to 94% in online mode and up to 98% in ECO mode, driving energy and operational costs savings compared to other models available on the market. The high output power factor of 1.0 enables continuous and reliable power to more connected devices, protecting them against many disturbances in the AC mains with the online double conversion technology and the input surge protection.

The flexible rack-mount or tower form factor, with rackmount kits included as a standard, facilitates stock management for distribution in the IT channel and simplifies installation to accommodate various micro data center and edge computing needs.

The unit's runtime can be extended with up to four external battery cabinets (EBC) for longer back-up protection, and the hot-swappable VRLA batteries can be easily replaced by users without the assistance of skilled personnel and without shutdown of the loads

for smoother operations and minimized maintenance costs. Additionally, the Liebert GXE has an integrated 4 amp charger providing quick battery recharge up to 90% in just three hours that can be critical in case of frequent mains failures, and an integrated battery management system to optimize battery life and recycling.

The Vertiv™ Liebert® GXE includes a user-friendly LCD colour display that makes it easy and intuitive to use. The unit offers remote monitoring capabilities for quick and easy access to IT

infrastructure, through the optional Vertiv™ Liebert® Intellislot™ Unity Communications card and a free download of Vertiv™ Power Insight software. Moreover, customers

can also rely on Vertiv™ LIFE™ Services to support remote maintenance and servicing of the UPS.

For more information visit www.Vertiv.com



Vestas wins 373 MW order featuring the first V163-4.5 MW wind turbines



IPP (Independent Power Producer) Red Rocket has placed a 373 MW order for the Brandvalley, Rietkloof and Wolf wind parks, to be located in the Western and Eastern Cape.

The contract includes the supply and installation of 64 V150-4.5 MW wind turbines, 12 V163-4.5 MW wind turbines and five V162-6.2 MW Enventus wind turbines. Vestas will service the wind parks through a 15-year Active Output Management 5000 (AOM 5000) agreement.

Red Rocket's CEO, Matteo Brambilla said: "Red Rocket has been investing and supporting South Africa's electricity crisis for more than a decade and with a portfolio of more than 1000 MW of wind, hydro and solar projects under devel-

opment, in construction or in operation in the country, we are delighted to continue making a significant contribution to South Africa and the rest of the continent." Brambilla added: "The projects will bring a R740-million community investment over 20 years through local social projects. The wind farms will start operating in 2024".

The order includes the first installations globally of the V163-4.5 MW wind turbine from Vestas' 4 MW platform. Featuring an 18 percent increase in swept area, the V163-4.5 MW has a large rotor-size-to-rating ratio resulting in a higher capacity factor, enabling up to 10 percent higher Annual Energy Production at park level compared to the V150-

4.5 MW depending on site-specific conditions. This increases power output at lower wind speeds significantly and improves predictability and stability in production, optimising the utilisation of the wind park as well as benefitting the energy grid.

Turbine delivery and commissioning are expected by 2024.

Vestas leads the South African wind power market with over 1,3 GW of capacity either installed or under construction. South Africa's new renewable energy targets, include reaching 17,7 GW of wind capacity by 2030 and increasing the presence of renewables in its energy mix from the current 11 per cent to about 41 per cent by 2030.

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Ms. Nosizwe Dlengezele, Regional Sales Executive for GE Gas Power Sub-Saharan Africa, giving a keynote presentation at the opening session of the Africa Gas Forum.

The role of gas in accelerating decarbonisation and the Future of Energy in Africa - Africa Gas Forum

AS Africa balances its need for more access to electricity with the global drive for a just transition to a cleaner energy future, a combination of renewables and gas power on the continent could lead to significant emissions reduction while delivering reliable, affordable, and sustainable power. African nations are committed to making significant progress towards addressing the energy challenges the continent is facing. To further accelerate progress towards the energy transition, GE participated at the Africa Gas Forum conference in Cape Town, South Africa, to discuss viable solutions which

can be adapted to scale up Africa's energy systems. Nosizwe Dlengezele, Regional Sales Executive for GE Gas Power Sub-Saharan Africa, rendered a keynote address, stating, "The energy transition remains the greatest uncertainty for the power sector today – the need to simultaneously balance affordability, reliability, and sustainability. Gas will play a critical role in the energy transition by complementing the growth of renewables and supporting grid reliability." Gas is not only increasingly abundant and affordable, but it offers the opportunity of conversions toward net-zero goals through hydrogen and carbon capture, utilization, and sequestration (CCUS) technologies. Notably, GE's record-setting 9HA gas turbines are the world's most efficient gas turbines and are already capable of burning up to 50% hydrogen blend. GE's HA gas turbine portfolio is one of the largest and the most efficient gas turbines in the world and offers the capability to transition to low-carbon fuels, such as hydrogen. Natural gas-fired generators have the lowest CO2 emissions of all fossil power generation fuels—a natural gas-fired combined cycle plant has roughly 67% less CO2 emissions of a similarly-sized coal plant, and even lower emissions levels for other pollutants. For African countries reliant on coal power, the growth of high efficiency combined cycle gas-fired power generation will support both coal-to-gas transition and accelerate renewables penetration by enhancing the reliability and stability of the energy grid. Also speaking at the forum, Vuyelwa Mahanye, Sales Director for GE Gas Power, stated that "GE's innovative technologies are tailored to respond to the needs of the Sub-Saharan Africa region with reliable baseload and flexible power. We need to create an energy environment in Africa that fosters industrialization while meeting global and country climate change targets. For GE, gas and renewables are the most viable solutions to make substantive reductions in emissions quickly."

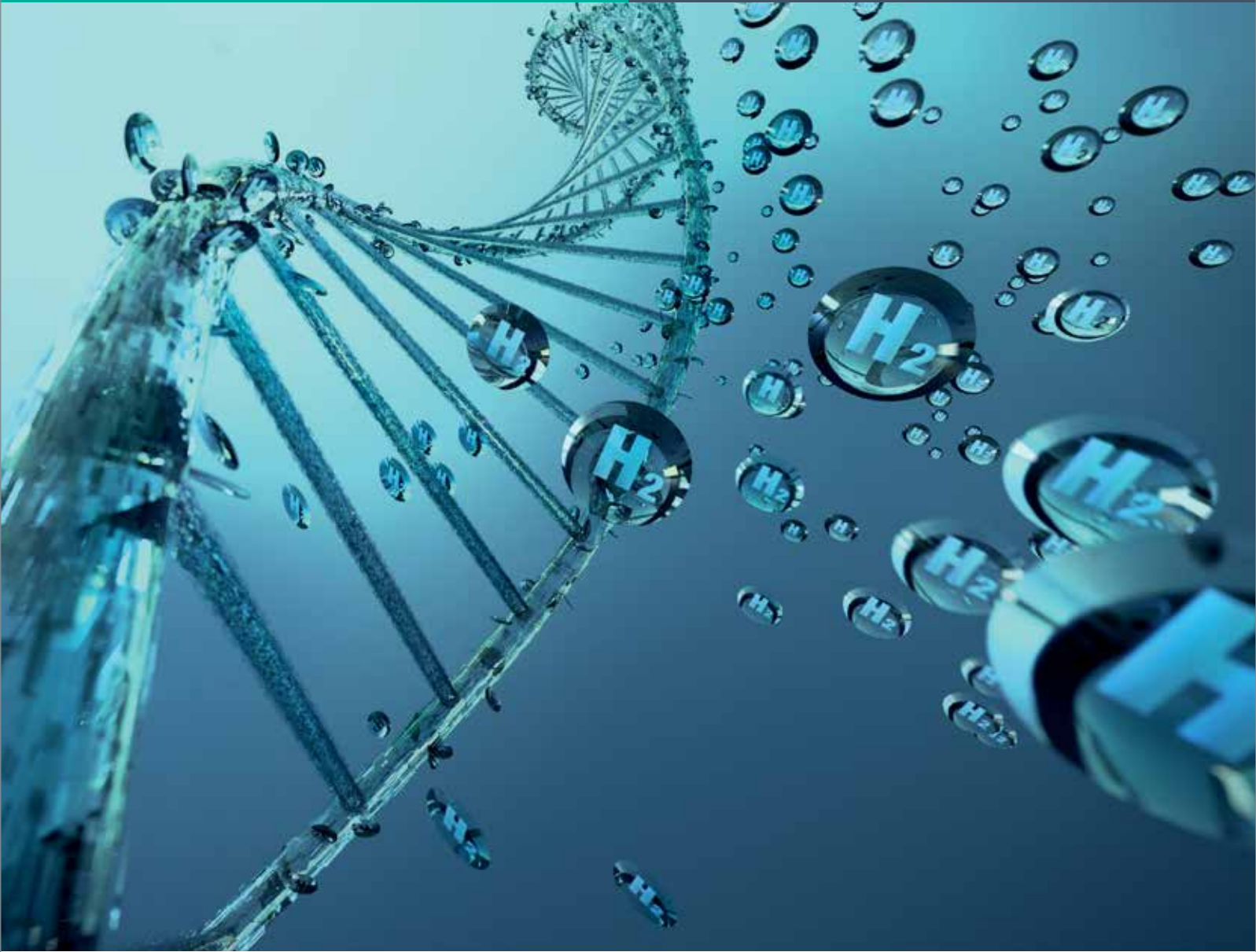
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Could waste plastic become a useful fuel source?



Victoria Bemmer from the University of Portsmouth is developing enzymes that can break down plastic. “There are already bacteria out there that have enzymes designed to break [polymers] down,” says Dr Victoria Bemmer, senior research fellow at the University of Portsmouth. Image source, University of Portsmouth

By Katherine Latham, Technology of Business reporter, BBC News, 14 March 2023

PLASTIC waste dumps, says Prof Erwin Reisner, could be the oil fields of the future.

“Effectively, plastic is another form of fossil fuel,” says Prof Reisner, who is professor of energy and sustainability at the University of Cambridge. “It’s rich in energy and in chemical composition, which we want to unlock.”

But the chemical bonds that make up plastics are made to last and, of the seven billion tons ever created, less than 10% has been recycled.

Dilyana Mihaylova, plastics programme manager for the Ellen MacArthur Foundation, says: “Our extractive, take-make-waste economy [means] billions of dollars’ worth of valuable materials are lost.”

Usually, plastic contaminated with food waste goes to incineration, but this plastic is really good for us. In fact, food is a good substrate - so it makes our process work better.”

Worldwide, more than 400 million tons of plastic is produced every year - roughly the same weight as all of humanity. Today, around 85% ends up in landfill or is lost to the environment where it will stay for hundreds, perhaps thousands, of years.

Now the race is on to find the best way to break those chemical bonds and reclaim the Earth’s precious resources locked into plastic.

Mechanical recycling, where waste plastic is washed, shredded, melted and reformed, degrades plastic over time and can result in inconsistent quality products.

The plastics industry is keen on chemical recycling, where additives are used to alter the chemical structure of waste plastic, turning it back into substances that can be used as raw materials, perhaps for making fuel like petrol and diesel.

But that approach is currently costly and inefficient and has been criticised by environmental groups.

“So,” says Ms Mihaylova, “just as we can’t recycle our way out of the plastics pollution crisis, we can’t rely on plastics-to-fuel processes to solve the problem either.”

Could a new solar-powered system show the way forward?

Prof Reisner and his team have developed a process that can convert not one, but two waste streams - plastic and CO2 - into two chemical products at the same time - all powered by sunlight.

The technology transforms CO2 and plastic into syngas - the key component of sustainable fuels such as hydrogen. It also produces glycolic acid, which is widely used in the cosmetics industry.

The system works by integrating catalysts, chemical compounds which accelerate a chemical reaction, into a light absorber.

“Our process works at room temperature and room pressure,” he says.

“Reactions run automatically when you expose it to sunlight. You don’t need anything else.”

And, assures Prof Reisner, the process produces no harmful waste.

“The chemistry is clean,” he says.

Other solar-powered technologies hold promise for tackling plastic pollution and CO2 conversion, but this is the first time they have been combined in a single process.

“Combining the two means we add value to the process,” says Prof Reisner. “We now have four value streams - the mitigation of plastic waste, the mitigation of CO2, and the production of two valuable chemicals. We hope this will bring us close to commercialisation.”

In addition, Prof Reiner says his system can handle otherwise unrecyclable plastic waste.

“Usually, plastic contaminated with food waste goes to incineration, but this plastic is really good for us. In fact, food is a good substrate - so it makes our process work better.”

Researchers around the world are looking for ways to turn unwanted plastic into something useful.

When broken down, the elements of plastic can be re-made into a myriad of new products including detergents, lubricants, paints and solvents, and biodegradable compounds for use in biomedical applications.

Nature has found ways of breaking down polymers - substances made up of very large molecules - and plastic is a synthetic polymer.

“We can tweak these enzymes by changing the structure of them very slightly - to make them go faster, make them more firm or stable.”

Using machine learning, Dr Bemmer and her team have developed variants of enzymes adapted to deconstruct all

varieties of polyethylene terephthalate (PET), a type of polyester.

The enzymes break the plastic down in a similar way to chemical recycling, says Dr Bemmer but, because they are akin to enzymes found in nature, the process can be done in much more “benign conditions”.

Where chemical recycling uses chemicals, the Portsmouth University team are able to use water. And the highest temperature they need is 70C, meaning energy consumption can be kept low compared to other processes.

Dr Bemmer and her team are developing their enzymes further and hope that their work will help them create a sustainable circular economy for plastic-based clothing too.

Polyester made from PET is the most widely used clothing fibre in the world.

However, recycling synthetic fabrics using enzymes is not easy. The addition of dyes and other chemical treatments make it difficult for them to be degraded in a natural process.

“Polyester is an absolute pain,” says Dr Bemmer. “Plus, it’s very rarely just pure polyester. You find mixed fibres as well.”

The team hope their enzymes will reduce the PET in waste textiles to a soup of simple building blocks, ready to be made back into new polyesters.

“We’re at a very early stage,” says Dr Bemmer. “We don’t know yet if the dyes and additives to these fabrics will inhibit the action of the enzymes on the polyester chain. Hopefully they won’t have an impact and we can just carry on but if they do, we can develop our enzymes further.”

Worldwide production of plastic continues to increase, and is expected to triple by 2060. For many, recycling remains the focus in addressing the issue, but some argue this will never be enough.

Back in Cambridge, Prof Reisner’s team are taking “baby steps in the direction” of commercialisation. They plan to develop the system over the next five years to produce more complex products and hope that one day the technique could be used to develop an entirely solar-powered recycling plant.

Around 600 million tons of syngas is already produced every year, says Prof Reisner, but it’s largely from fossil fuels.

“If we can make syngas, we can access almost all of the petrochemical industry and make it sustainable.”

For the unabridged version of this article, visit: <https://www.bbc.com/news/business-64703976>

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US invaded by barbarians!

Pull up the drawbridge! Flood the moat! The barbarians are coming!” ranted Luke the Dude, before even tasting his draught.

“Which barbarians, old son,” queried The Prof politely. “And why would they select our little town to overrun?”

“Useless!” opined Jon the Joker objectively.

“American barbarians of course!” Luke charged forth. “Forget about our arty little town, Prof, over there in artless America they’re pulling books out of library shelves and banning pictures of Michelangelo’s David! Filthy porn! Florida has already surrendered under the uncultured leadership of their Trump-cloned Governor.”

“That one,” snorted Jean-Jay, “he will outbare the barbarians at any book burning!”

“Speaking of which,” conspired Bill the Beard, “Even the Bible is in the sights of those who wish to sanitize it – all that sex! It’s that lusty King David again, caught without his knickers – which, of course,

nobody wore in his time.”

“Useless!” sniggered Jon the Joker, “imagine, Goliath would have laughed him all the way out of the uncivilized world!”

“Hold it right there,” worried Miss Lily, careful of how fast humour can go south in the local Pub & Grill. “Are you sure, Luke, that this is not more Trumpish fake news? That man has been a very bad influence on some of his countrymen.”

“Only his country-men?” Jon the Joker confirmed Miss Lily’s fears.

“No,” warned she, “we’re not going there!”

“Where?” enquired Jon innocently, “Trump grabbing the attention of his country-women?”

Here The Prof thought it prudent to change the subject: “Pray tell us, young Lucas, why you believe the outrages of those uncultured barbarians are grounded in fact?”

“The Telegraph reports that a Florida school principal had to resign,” elucidated Luke, “after the art teacher introduced

a class to Michelangelo’s work – and the statue of David upset at least one parent (yes, in DeSantis Land one is a majority). Parents had not been warned in advance, apologised the school.

“This kind of madness is being enforced all over Florida by semi-fascist changes to the rules. See what I mean by barbarism?”

“Thanks Luke,” said Irene the Queen, “and what did you mean, Bill, about The Bible also being targeted? Was that a joke?”

“Don’t know, maybe,” pondered Bill the Beard, “the complainant’s intention could be to demonstrate how witch-burningly mindless these rules are. Fact is, The Bible, Anne Frank’s Diary and some 40 other book titles were pulled from libraries in a Texas school district. This happened in August and is still smouldering:

“After the targeted books were reviewed for filthy contents, the gauleiters that be did not like the outcome of the reviews and kept the books banned for re-reviewing. To my mind, this is the kind of thing last seen in Nazi Germany and still seen in Middle

OPINION

ON THE CONTRARY

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

Pieter Schoombee



Eastern tyrannies.

“Looking at what’s happening with the arraigned, Waco-hinting Trump, threatening ‘death and destruction’ and his followers capable of that – as demonstrated in their attack on the Capitol to overthrow the democratically elected government – I agree with Luke. These are barbaric, perilous times.”

Email: noag@hermanus.co.za

“A life worth living”

David Lipschitz is a scientist, energy analyst, and consultant working at the intersection of energy and business. David consults, designs, installs, and has a vision for micro-utilities. David has received several energy and environmental awards for his services to the environment and his sixth book, The Last Blackout, was published in 2022.

IN 1999, I discovered a way of living and retiring, decreasing my cost of living, thus reducing my stress levels, increasing my wellness. If you seek to constantly minimize your costs you eventually get to a point of low debt and low repayments. One needs determination and a willingness to sacrifice short term benefits for long term benefits. One needs diligence and persistence.

The most difficult part is when your friends and family laugh at you when you make different decisions from them.

I discovered South Africa’s energy future in 2004, which predicted load shedding from 2008 until 2030!

In 2008 to 2009, we built our first house scale SSEG (Small Scale Embedded Generation) Solar-Electric PV (Photovoltaic), Inverter, and Battery system.

Our 2009 electricity system powered lights, network, TV, fridge/freezer and garage doors. We could use our kettle or toaster and we could do some cooking using an induction cooker during load shedding.

But this system increased our electricity cost from 50 cents a kWh (unit) to R5 a kWh for 1/3rd of our house that this system ran. Our friends called us stupid. Why would we spend 10x more for 1/3rd of our electricity cost? I said to one of them: “you’ve just bought a new car and if



David Lipschitz

you drive it for 20 hours a month it costs you R100 an hour to drive, just for repayments. I choose to put that car on my roof, i.e. to put that investment and those repayments on my roof.” They still thought I was mad, misunderstanding total picture thinking, which I will discuss in the next article.

By 2008, as a well-known member of the energy community I was invited to the launch of the REFIT (Renewable Energy Feed In Tariff) programme in Parliament in Cape Town. Instead of buying the car of my dreams, I put the car on my roof, investing in a system to ensure that load shedding wouldn’t affect my family. I increased my bond so that I could visit the USA for a month of training and I wrote a PV exam. And I used more funds from that bond increase to fund our electrical system and to fund my new energy business.

The South African government didn’t implement the REFIT and I didn’t yet know about Greenwashing, half-truths, and paltering. I will write articles about how these factors affect our lives and how a dependence on government slows down economic progress.



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