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Sunningdale developments on track with completion of major intersection



IN preparation for the construction of residential, community housing and commercial developments in Sunningdale Phases 12A, 13 and 14 - opposite the Table Bay Mall in Cape Town's western suburbs - major work to upgrade the R27 and Big Bay & Berkshire Boulevards intersection has been completed.

Undertaking the R44-million plus intersection upgrade was Baseline Construction on behalf of the developers, Garden Cities NPC who covered the cost as part of its Services Agreement with the City in lieu of development contributions.

The project took approximately 60 weeks and the scope of work was extensive besides roadway improvements which involved the addition of lanes and partial duelling of the respective roads approaching the intersection.

A portion of a new bulk stormwater pipeline was also constructed which in future will route stormwater runoff from Sunningdale Phases 12A, 13 and 14 to the existing Big Bay outfall pipeline located at the eastern boundary of Big Bay.

Upgrade of the intersection

The scope of Baseline's scope of work included the construction of:

- Additional lanes on all the intersecting roads; namely the R27, Berkshire Boulevard and Big Bay Boulevard. This included:
 - Kurbing, channelling and concrete edging;
 - Asphalt surfaced pavements;
 - Road marking and road signs;
 - Non-motorised transport facilities on Berkshire Boulevard and Big Bay Boulevard;
 - Road drainage such as stormwater catchpits, pipelines, manholes, subsoil drains and roadside channel;
- Stormwater side drain along the R27 western verge;
- Street lighting and additional services sleeves;
- Relocation of telecommunication ser-

vices, irrigation pipelines and valves, fence line, etc.;

- Other road construction related tasks.

Bulk stormwater pipeline

The construction of the bulk stormwater pipeline consisted of the laying of approximately 300m of 1 050mm diameter concrete pipes and manholes.

The pipe excavation depth of the bulk pipeline ranged from 1,5m at the inlet, increasing rapidly to a depth of 4,2m at the termination point.

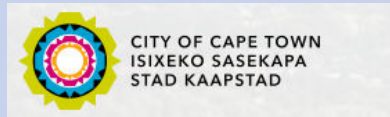
The pipeline crossing the R27 was installed by means of trenchless technology with a cover of 1.94m - 2.34m to the road finish level.

Planned developments

Garden Cities Group Manager: Engineering & Planning Renier Smith outlined the extent of the development.

- Sunningdale Phases 12 - Linked to approximately 663 SR (Single residential) Erven and various Group Housing, Local Business and Community sites.
- Sunningdale Phase 13A - 429 Units (aka Northridge Coastal Estate) with the perimeter fencing/walling of the Green Star, Sustainable Precinct now in place and the clubhouse, guard house and admin building.
- Sunningdale Phase 13B - 5.3ha Group Housing Site- Awaiting approval
- Sunningdale Phase 13C - 95 SR Erven-serviced and reflected on building programme during course of next year.
- Phase 14 in its various sub-phases consists of 775 SR Erven, 8 Group Housing Sites (ranging between 1.5 ha to 2.5 ha), a General Business site, Local Business Site and various Community zoned sites - first sub-phase to be serviced by year end to release a Life Right Facility.

Cape Town's Urban Waste Management (UWM) Directorate on Waste Minimisation



Why is it so important for me to sort the very small amount of waste I generate? What difference can I make on my own?

The ultimate aim of Cape Town's Integrated Waste Management Policy, is to greatly reduce the amount of waste that goes to landfills.

The first step is to change how every resident thinks about waste. Separation at source is the key and necessary. If every citizen and every industry engages in what is essentially a self-serving, financially rewarding, form of self-regulation - everyone wins in the battle to protect our environment.


What is waste minimisation?

Waste minimisation can be defined as "systematically reducing waste at source". It means; preventing and/or reducing the amount of waste we generate; using raw materials and packaging efficiently; and encouraging avoidance, re-use, recycling and recovery of waste. Waste minimisation is essentially one of the key things we can do to greatly reduce the amount of waste going to landfills.

What is a waste minimisation club (WMC)?

A group of persons, typically residing in a high density residential or office building, or a multi- property cluster residential or business development. The club should be registered,

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Opinion: Is SA ready for the Metaverse?

By Amrithesh Anand, Associate Vice President at In2IT Technologies

THE metaverse, the hypothetical, fully immersive, three-dimensional, and interactive future state of the Internet, is creeping ever closer to becoming a reality. Just like with any major innovation, it has the potential to completely disrupt the way we live and work, and new business models could potentially be born that we currently cannot even imagine.

Are you ready for the revolution?

According to an ITWeb survey, more than half of South African businesses will be participating in this new technological revolution. The question is, how do businesses prepare to leverage the metaverse to its full potential?

Firstly, it is essential to understand this potential as well as the limitations of the metaverse and how it can benefit operations and the customer experience. This means it is vital to identify relevant use cases that will deliver maximum business value. This in turn requires a clear strategy on how to engage with and operate in the metaverse, how content will be created and distributed, how businesses will engage with customers and how offerings will be monetised.

It is also important to make the right investments into technology and infrastructure to both develop and manage virtual spaces and to make user privacy and data management top priorities with robust security measures, privacy policies and enforcement. In addition, the nature of the metaverse makes the adoption of an agile approach more important than ever, so that businesses can experiment and iterate strategies and products to adapt as required.

Your IT is the key

The heart of the metaverse is technology, which means that having the right IT partner is critical to success. Technical expertise is an important consideration in navigating

the complexities of the metaverse, including ensuring that businesses have the right hardware and software and can troubleshoot technical issues fast.

While the future state of the metaverse remains unclear, the reality is that the technologies are here and so, therefore, is the potential. South African businesses need to be prepared to take advantage and leverage available tools to drive competitiveness and long-term success, or they risk being left behind in a virtual and digital world.

Hydrogen hype is raging but can't lure investment to Europe

As Europe seeks to exit fossil fuels, a relatively unproven alternative is forming the backbone of its clean-energy plans — but failing to convince investors.

By Eamon Akil Farhat and Josefine Fokuhl, Bloomberg News

HUNDREDS of hydrogen projects have been floated by governments in the past years, yet only 7% of those have the financing to start construction, according to data compiled by Bloomberg New Energy Finance.

That highlights the prevailing scepticism over the ability to produce large amounts economically, and contrasts with the situation in the US, where generous subsidies under the Inflation Reduction Act are luring investments for renewables including hydrogen.

The gas is made by splitting water with electricity, and can be burned to create energy without releasing carbon dioxide. It

has the potential to use existing gas networks to bring fuel to heat homes — a big advantage for governments whose finances are stretched after years of crisis firefighting — while complementing the intermittency of renewables.

“The hydrogen sector is now getting a lot of hype,” said Adithya Bhashyam, a hydrogen analyst at Bloomberg-NEF. “There’s a lot of project activity in terms of announcements and very little is actually being built.”

Energy companies say there’s not nearly enough infrastructure in place to use hydrogen as a fuel for power plants or transport it to end users, making it complicated to plan large-scale investments. Even the hundreds of projects that have been proposed only have the capacity to provide about 3.5% of the European Union’s projected energy needs by 2030.

Governments are steering their economies out of the worst energy crisis in decades with policies to guarantee domestic supply and limit damage to the environment. Many are counting on hydrogen to replace fossil fuels where other renewables — such as wind and solar — are unable to, because certain industrial processes can’t easily be electrified.

Hydrogen’s main advantage is that it’s a way to store excess power produced by wind farms at sea and solar parks in distant deserts for future use. It can also be made using low-carbon



Despite vast hydrogen ambitions, Europe is struggling to lure in investments. | Photo: Waltraud Grubitzsch/AP/Ritzau Scanpix.

technologies, boosting its attractiveness for governments that are trying to exit coal. UK Energy Secretary Grant Shapps, for instance, aims to produce enough hydrogen by 2030 to power London for a year.

But companies in Europe’s energy sector say an expansion at such a fast pace requires greater regulatory clarity, as well as financing from governments.

“The legislative details aren’t there yet,” according to Marco Alvera, Chief Executive Officer of Tree Energy Solutions, a Belgian company that builds large-scale hydrogen projects. He says officials should support manufacturing of electrolyzers — expensive machines that split molecules to produce hydrogen — and create special contracts that incentivize the use of renewables in powering them.

While some support measures are already underway — including a EUR3bn investment vehicle, known as a hydrogen bank, dedicated to building a future market for the fuel — European

Union regulations for production won’t come into full force until 2028.

Struggling economics

Another issue is the technology’s early research stage. Even German utility EnBW Energie Baden-Württemberg AG, which has the country’s most advanced plans to switch plants and run them on hydrogen still has doubts about the outlook.

“There’s a lot to be learned and it will take a while before we can really talk about economics here,” EnBW Chief Financial Officer Thomas Kusterer said on a recent call to analysts.

Hurdles emerge even before hydrogen molecules reach the network. Hydrogen is the lightest and smallest element, and in its liquid form can be explosive when exposed to air. That makes it difficult to transport and requires building appropriate infrastructure.

Some gas grids can be used to transport hydrogen, though existing ones are often too leaky. While

EnBW said it will be able to run some of its gas plants with 75% hydrogen, Kusterer added that the current grid in Germany can only transport 20%.

The EU’s plan to both produce and import 10 million tons of hydrogen by 2030 seems so far to be a distant hope.

Political wrangling is stalling progress on a multibillion-euro pipeline that policy-makers hope will eventually pump fuel from Barcelona to Marseille and Berlin. Converting liquefied natural gas terminals — such as those newly built in Germany — to allow imports by ship is likely to be costly.

But challenges in producing or obtaining the fuel form only a part of energy companies’ concerns. What’s more worrying to them is who will eventually buy it.

“There’s no point producing huge volumes of hydrogen if you don’t have off takers who are ready to actually use that hydrogen,” said Brett Ryan, head of policy and analysis at trade association Hydrogen UK.

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De Beers to deliver on ambitious 2030 sustainability goals

2022 sustainability report highlights milestones in climate ambition and ethical leadership of the diamond industry. (Abridged here: for full report visit: <https://www.debeersgroup.com/sustainability-and-ethics/building-forever-reports>)

DE BEERS Group has provided an update on progress toward its 2030 'Building Forever' sustainability goals. The goals were set in 2020 and are De Beers' blueprint for creating a positive and sustainable impact in its host countries and throughout the diamond value chain. They span four pillars: leading ethical practices, partnering for thriving communities, protecting the natural world, and accelerating equal opportunity.

During 2022, De Beers saw advances across all four Building Forever pillars and all 12 goals, which included reductions in water use and energy intensity, innovations in diamond tracing technology, increased representation of women in senior leadership and progress toward its climate commitments.

The 2022 sustainability report provides a detailed overview of the Building Forever pillars and goals, along with key progress toward each – a summary of which follows:

Leading ethical practices

Key highlights include:

- Increased the number of entities participating in the Best Practice Principles, the company's set of leading

ethical, social and environmental standards which are independently audited, to 2 690 from 2 283 in 2021.

- Launched the Tracr blockchain platform at scale, enabling diamond origin to be immutably recorded from source to store. More than half of De Beers' global rough diamond production by value is now being registered on Tracr.
- Increased the number of mine sites participating in GemFair, De Beers' programme to support the formalisation of the artisanal mining sector, to 263 from 219 in 2021. The programme also provided fair and equitable finance to support the operations of 49 members.

Protecting the natural world

Key highlights include:

- Achieved a 14 per cent reduction in freshwater withdrawals and a four per cent reduction in energy intensity compared with 2021.
- In partnership with Anglo American and EDF Renew-

ables, commenced development of more than 70 MW of renewable energy projects in southern Africa.

- Invested \$2 million in Kelp Blue, a start-up that grows underwater kelp forests off the coast of Namibia, which can absorb carbon up to 50 times faster than land-based forests. In addition to supporting De Beers' carbon neutral commitment, Kelp Blue will also create jobs and support sustainable economic development in Namibia.
- Marked the 20th anniversary of the Diamond Route, the 202 000 ha network of conservation sites that De Beers manages across southern Africa, protecting more than 50 mammal species.
- Continued Okavango Eternal, a partnership with National Geographic to protect the critically important headwaters of the Okavango Delta. Progress included installing innovative water monitoring technology, deepening research and understanding, and engaging with

communities on soil-friendly farming methods.

Partnering for thriving communities

Key highlights include:

- Marked two decades since the introduction of De Beers' pioneering HIV programme to provide free and confidential treatment to employees and their families living with HIV and AIDS. The programme has helped to save an estimated 650 lives during this time and has also ensured there have been no cases of mother-to-child HIV transmission among De Beers employees or their partners for 14 consecutive years.
- In collaboration with Right to Care, rolled out a community-oriented primary care partnership to strengthen medical clinics in southern Africa, prioritising areas that lacked medical provision.
- Supported 420 students in securing 12-month internships in different sectors through a partnership with International Youth Foundation.



Environmental scientist on plane of land at sunset in Orapa Game Park, Botswana.

- A total of 18 southern Africa-based companies completed the Stanford Seed Transformation entrepreneurship programme that De Beers supports in partnership with Stanford University.
- In total, more than 3 340 jobs were supported by De Beers through various socioeconomic development projects and initiatives and 71 per cent of its goods and services were procured from local suppliers.

Accelerating equal opportunity

Key highlights include:

- At the end of 2022,

women comprised 33 per cent of senior management positions within De Beers Group (up from 31 per cent in 2021).

- Extended the partnership with WomEng, a highly regarded social enterprise committed to helping women and girls pursue careers in engineering and technology, for another three years.
- Since 2018, De Beers has provided 89 scholarships to women studying STEM at universities in Canada, has reached more than 3,700 school students in southern Africa through

STEM workshops, and has supported more than 2,400 women entrepreneurs to grow their businesses.

- Provided funding for a free 12-week jewellery making course for teens in New York City, which aims to fill the void of limited access to jewellery studios for teenage designers. De Beers also established an internal Equity, Diversity & Inclusion (EDI) Council bringing volunteers from across the business to deepen understanding of the company's diverse workforce and further cultivate an inclusive culture.

Communication tech will be vital to sustainable grids

A white paper released by Huawei and IDC has underlined how significant communication technologies will be in building the sustainable, carbon neutral energy grids of the future.

It underlines how the power communication network is the basis for automatic power grid dispatching, market-oriented network operations, and modernised management. Such a network, it says, is an important means to ensure secure, stable, and economical operations of the power grid as well as the core infrastructure of the power system.

The white paper further describes how to

build an intelligent optical base for power communication networks based on the all-optical architecture. It also aims to help the electric power industry cope with digital challenges, meet technical requirements for digital transformation, and accelerate digital transformation.

"Digital technologies are vital to leading the transition to a more sustainable energy sector," said Victor Guo, President of Huawei Sub-Saharan Africa Enterprise Business Group. Using the expertise it's gained from more than three decades in the communication sector, he added, Huawei ideally placed to "pave a digital



Edwin Diender, presenting the White paper at the recent Enlit Africa 2023 conference.

way to a global energy transition."

Edwin Diender, Chief Innovation Officer, Global Electric Power

Digitalisation Business Unit, Huawei Technologies, added: "Where having a smart grid is often the

end-stage for the energy industry and electric power companies, we see much more potential," he said. "With such aspiration, the informatisation of the power grid becomes more significant, more meaningful. And this digital journey will lead to more sustainable future power systems."

"We're looking at capabilities from our past and seeing how they can be applied to the energy sector," he said.

Transmission Line Intelligent Inspection Solution, for example, allows for the automated and remote monitoring and inspection of transmission lines. It's significantly safer, more

efficient, and affordable than manual inspections. It also means improved transmission line efficiency, fewer outages, and faster fault response and repair efficiency improvement.

Huawei's Power Utility Campus & Substation Security Solution, meanwhile, ensures that utilities are able to operate more safely and securely. Integrating WiFi 6 and Internet of Things (IoT) technologies, it ensures that utilities can identify and react quicker to hazards and falls, know the real-time location of employees, geo-fence specific areas, and conduct intelligent inspections.

Diender added that

utilities need to embrace that digital transformation is an ongoing journey that can't be achieved as a one-off project or by adopting specific technologies. That journey starts with digitisation (eg. the switching from analogue to digital meters), moves on to digitalisation (building a network of smart meters), and ultimately results in full digital transmission (which might look like having full digital twins of every meter on the grid).

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ITHUBA, South Africa’s proud National Lottery Operator, is marking its 8th anniversary this month, solidifying its position as the top operator in Africa. From humble beginnings to extraordinary success, ITHUBA’s journey is a remarkable tale of innovation, excellence, and philanthropy.

ITHUBA, derived from the isiZulu term for equality in opportunity, has consistently leveraged its core values to shape a transformative landscape. As a 100% Black-owned company with solid female representation, ITHUBA has set the standard for diversity and become a catalyst for widespread change.

Starting from scratch, on the 1st of June 2015, ITHUBA has successfully reinvigorated the National Lottery under the visionary leadership of its CEO, Charmaine Mabuza. Their unwavering commitment to excellence has surpassed their initial goal of ensuring a seamless transition from the previous operator while upholding the National Lottery’s integrity.

ITHUBA’s hunger for success has propelled them to seize each opportunity that has come their way. And under their tenure, ITHUBA has introduced many forward-thinking initiatives, including new games, expanded retail networks, enhanced online platforms, and solidifying the security and transparency of their operations. These milestones have contributed to job creation and empowered women in the workplace, significantly expanding their reach and attracting new audiences.

With an impressive list of accolades achieved, ITHUBA’s triumphs on a global level speak volumes about its dedication to excellence. Their distinction as the ‘Lottery Operator of the Year’ by Gaming Intelligence in 2021 highlights their relentless pursuit of success, even amidst the challenging circumstances imposed by the COVID-19 pandemic.

ITHUBA has forged successful partnerships with several major banks in South Africa, elevating their online offerings to the market. This ground-breaking collaboration enables players to purchase lottery tickets through their online banking accounts. It is a first-of-its-kind service in South Africa and a rarity among National Lotteries worldwide. Additionally, the ITHUBA mobile APP allows players to engage with the National Lottery effortlessly, offering an unparalleled and convenient on the go experience.

From the beginning, ITHUBA’s unwavering commitment to reinvigorating the National Lottery has led to exceptional outcomes, resulting in a remarkable total revenue generation of over R10.1 billion rand towards good causes. These substantial funds have been channelled into the National Lottery Distribution Trust Fund (NLDTF), a crucial resource administered by the National Lotteries Commission, which funds their Corporate Social Investments (CSI) projects throughout South Africa.

At the core of ITHUBA’s values lies its profound impact on local communities through its own CSI projects funded by ITHUBA: ITHUBA has empowered disadvantaged students through their bursary program, providing financial aid that opens doors to brighter futures. Furthermore, their investment of over R20 million in the past year has facilitated tailor-made CSI projects that address the unique needs of the communities they serve.

One remarkable initiative saw ITHUBA distributing over 15 homes across the country at the end of 2022, transforming the lives of ordinary South Africans who had endured hardships and found themselves without shelter due to unforeseen circumstances.

ITHUBA’s relentless drive to effect positive change propels them to greater heights of success. Coupled with their humility and unique ability to leverage their achievements to create a positive ripple effect for vulnerable communities, ITHUBA is worthy of celebration.

As ITHUBA marks its 8th anniversary, the company stands proud as the premier operator in Africa. Their commitment to innovation, dedication to diversity, and unwavering philanthropic efforts have solidified their position as an industry leader.

ITHUBA’s extraordinary journey, from start-up to stand out, inspires all with its continued commitment to excellence.



Western Cape Government adopts Coastal Management Programme

ANTON Bredell, Western Cape Minister of Local Government, Environmental Affairs and Development Planning recently gave notice of the adoption of the Western Cape Provincial Coastal Management Programme 2022–2027.

- Coastal access facilitation.
- Climate change, dynamic coastal processes, and planning for resilient communities.
- Land and marine-based sources of pollution and waste
- Natural and cultural resource management.
- Estuarine Management.
- Capacity building, advocacy, and education.
- Compliance,

monitoring, and enforcement. The implementation of the Programme will be in partnership with all other relevant government and coastal stakeholders and communities. “I want to thank all stakeholders who will be joining hands working

together to achieve a sustainably developed and resilient coastline. Our success is directly linked to our ability to work as a team,” Minister Bredell said. The Programme was developed and is adopted in terms of section 46(3) of the National Environmen-

tal Management: Integrated Coastal Management Act, 2008. The Programme and a summary thereof are available for public inspection electronically and in hard copy, respectively, as follows: (a) on the website of the Department at <https://www.westerncape.gov.za/eadp/about-us/meet-chief-directorates/env...>; and (b) at the head office of the Department on the Ground Floor, 1 Dorp Street, Cape Town.

Any queries can be directed by email to wccmp@westerncape.gov.za.

“...the current state of resource depletion and degradation... we take the necessary steps to reduce the negative impacts...”

“The Coastal Management Programme is an invaluable tool allowing for integrating coastal management in the Western Cape. It sets out the schedule for the implementation of coastal management in priority areas by the Department of Environmental Affairs and Development Planning as the lead agency. The Programme also enables cooperative governance and stakeholder partnerships, as it plays a key role in bringing together the efforts of various spheres and sectors of government, the private sector, and communities, to provide an accessible and well-managed coast for all inhabitants of, and visitors to, the Western Cape,” Minister Bredell said.

“The Western Cape Government takes great pride in our picturesque and iconic coastline. The rich social, cultural, and natural heritage associated with the coast is an intrinsic part of the value of our natural environment and a key economic differentiator in our Province,” Minister Bredell continued.

He warned that, “... the current state of resource depletion and degradation of our coastal and estuarine resources in the context of a changing climate requires that we take the necessary steps to reduce the negative impacts on coastal communities, the natural environment and coastal infrastructure.”

The Programme identifies nine priority areas:

- Social and economic development.
- Partnership, Cooperative governance, and Local government support.



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Considering semigration? Do it now, says expert

GAUTENG, with Johannesburg and Pretoria, remains the country's economic powerhouse. Despite being the smallest province, it hosts almost 1 in 4 South Africans. It also contributes more than a third of GDP (Stats SA 2017) and more than 40% of consumer credit is granted within its borders (National Credit Regulator Q4 2022).

However, there has long been a trend of South Africans seeking out perceived lifestyle advantages by moving to other provinces. "KZN and, most notably, the Western Cape are favoured

semigration destinations," says national property trends expert and co-founder of Sentinel Homes, Renier Kriek.

Increased semigration

Before Covid-19, semigration often took one of two forms.

Firstly, whole businesses or business units would relocate to the Western Cape or KZN with their employees in tow. This practice continues as businesses seek better service delivery, such as the City of Cape Town's ability to shield its residents and businesses from some of the effects of load shedding.

The second form was people who quit their jobs and accepted a pay cut to enjoy the so-called 'lifestyle dividend' of living closer to the shore or in rural areas, or decided to move their families and commute to Gauteng by plane, to arrive at the same result.

After Covid-19, which normalised remote working, a third variant of the semigration trend arose. Remote workers can now work from almost anywhere.

"This new development has led to increased semigration to outlying or previously less favoured areas, such as small coastal towns, where whole businesses and single job-seekers would rarely have ventured," says Kriek.

These include West Coast towns such as Langebaan, St Helena Bay and Paternoster. The sleepy fishing village of St Helena Bay, for example, has 23 real estate agencies at last count, each with a number of agents selling and renting out property. The market for real estate there is booming.

Factors driving people to such destinations include the desire to escape higher levels of load shedding and crime, improved service delivery, a more

relaxed social environment, and promising economic growth, job creation and infrastructure development.

In-demand areas

For lower income consumers, the Western Cape is attractive due to its lower unemployment rate (21.6% vs 32.9% nationally). The province is also reducing unemployment faster than other parts of the country.

In addition, it has an advantage in infrastructure, such as schools and hospitals, which are perceived to be superior.

Between February 2022 and February 2023, food prices in the Western Cape grew by 12.4%, which is much lower than Gauteng (14.2%).

"The semigration trend in the Western Cape is fairly broad-based whereas the northern coast is attracting more affluent earners from Gauteng," says Kriek.

Similarly, unemployment in KZN (30.9%) and the Northern Cape (26.6%) is less than the national average.

Impact of semigration

While some areas are feeling the impact of semigration, others are witnessing economic growth as a result of

this influx of new residents.

On the one hand, previously popular locations like the northern suburbs of Cape Town have become much busier due to semigration, with the roadways surrounding the city showing signs of being overburdened.

However, other favourite semigration destinations, like Mossel Bay, are enjoying beneficial growth and urbanisation. In Mossel Bay's case, this is due to its close proximity to George Airport, which makes commuting between Johannesburg and Cape Town's suburbs easy and convenient.

It is also highly probable that the flood of semigrants to these areas could drive housing prices up. This could be either to the benefit of locals selling their property or to their detriment if they wish to buy. In addition, existing homeowners could face higher-than-normal rates increases.

Prices in the Cape Town metro area have already far outpaced growth in the other urban centres. This factor, coupled with the inclination to seek greater value in times of rising interest rates, is driving buyers to hunt for property in outlying areas that could yield bigger bang for their buck.

"This trend is likely to continue and may intensify as national service delivery and infrastructure maintenance seem to lag behind the Western Cape," says Kriek.

Availability of property

The supply of property may be hampered by over regulation of new constructions while reducing the availability of affordable housing to lower income earners.

As demand outstrips supply, areas outside established urban and suburban districts will surely gain more attention from home seekers, and experience the same economic benefits and growth.

Kriek says that prospective semigrants should therefore take the plunge as soon as possible.

"There are other trends to consider apart from semigration when deciding where to live so it's important to plan carefully; in addition, interest rates are already peaking so, if you can afford it, you will likely be better off in the future as long as you act now," he says.



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Grid free, nearly!

(Apologies to those who understand these things in advance, and hopefully the rest of us may derive some benefit!)

AFTER persevering with a petrol powered generator for five years, the noise and especially the cost of fuel (At Stage 6 in excess of R5 000/mth) got me down. My 7 kVA generator did an admirable and reliable task of keeping my house powered during loadshedding so long as the black-outs occurred between 08:00 and 10:00 – estate rules and neighbour complaints from sleepy heads especially over the weekends. Taking the plunge into battery storage, solar panels and inverters as I did a fortnight ago has

caused these tired eyes to blink open even further than usual as I now have an ‘App’ that not only gives me real time usage of various appliances and a recent history of what’s been happening with my solar system, but actually shows me my power consumption at any given time and whether it’s being supplied by the grid, panels or the battery or a combination of all three. Clever stuff! While it’s new to me I’m aware that such black magic has been available both locally and especially overseas for several years.

Smart inverter
I was somewhat mistakenly under the impression that the solar panels supplied the battery with energy via the inverter, with it acting as a battery charger, and then converted the DC to AC to feed the home network during loadshedding, topping up the battery when grid power returned. That as I was informed by the very efficient installer, is only part of the story and I actually have paid for a smart inverter that monitors and manages usage, outages, grid and panel

inputs. The inverter’s ‘brain’ works on a sort of triage system, selecting the most appropriate energy source in an order of priority. This ensures that the solar panels will power both battery recharge and appliance usage if conditions are right. That means that, on a sunny day with a full battery and loadshedding, if the load is less than the output of the panels then the sun provides the load with ‘free’ energy. Even if the load is greater than the panels can provide and there is no loadshedding on a sunny day, the

‘draw’ from the grid is only what needs to be topped up from that provided by the panels. The inverter is wired for essential and non-essential load meaning that high consumption appliances – usually with heating elements such as your geyser, oven and electric hob – are effectively switched off during loadshedding events, thus preserving battery power for the essentials such as lights, TV, computers and of course, the internet hardware. My installation was carried out very efficiently although there were a few hiccups due to some dodgy and

short cut wiring on the board carried out prior to my ownership. Once faults were traced, the system is behaving as designed and what a pleasure to feel immune to the dreaded loadshedding. Some discipline is however required during loadshedding, not to switch on multiple high load appliances all at once – the toaster, kettle and microwave for example, as I did without a second thought when we had Eskom power in the old days. Speaking of the old days, when I lived in Johannesburg during the 70’s, many homes

were fitted with ripple controllers which are radio controlled devices that remotely allow the municipality to switch off geysers during the morning and evening peaks, taking pressure off the grid. Why they were abandoned is anyone’s guess but our new Minister of Electricity has woken up to the fact that ripple controllers fitted to the nations geyser population could spare Eskom of 400MW of collective power. Nothing new under the sun then, except smart inverters perhaps! Eish.

Letter to the Editor

A reader writes:

Can you write an article about the negative effects of coalbed methane or coal seam gas. Many studies show the potential impact coalbed methane can have on the groundwater and air quality Methane gas is worse than coal. To inform the public of the negative effect of coalbed methane. He/she provides the following links to substantiate the health hazards,
• <https://the-conversation.com/air-pollution-from-coal-seam-gas-may-put-public-health-at-risk-10819>
• <https://www.brisbanetimes.com.au/national/queensland/origin-energy-pleads-guilty-to-releasing-contaminated-coal-seam-gas-water-20220906-p5bfpq.html>
• <https://www.mining.com/effects-of-coal-seam-gas-activity-on-human-health-not-fully-understood-study/>
• <https://www.abc.net.au/news/2022-11-01/documents-reveal-significant-csg-well-corrosion/101507572>

The editor replies:

Thanks for bringing this issue to my attention. I read the links you attached to your mail and all but one refer to situations in Australia, with the emphasis on fracking to extract methane gas using water pumped at high pressure to force the gas to the surface. The issue it seems in Australia and the USA is that the waste water is contam-

“The exploration underway by Kinetiko in Mpumalanga and the discoveries made and in a more advanced stage of commercialisation by Renagen in the Free State are not fracking operations...”

inated by contact with the methane, and what is done or not done to treat that water could be ascribed to a lack of regulation or deliberate flouting of regulations. The exploration underway by Kinetiko in Mpumalanga and the discoveries made and in a more advanced stage of commercialisation by Renagen in the Free State are not fracking operations and do not use chemically infused water at high pressure to extract the gas. There are no wastewater disposal issues at these sites to my knowledge. The issue of fracking principally in the Karoo has not reached finality with divided opinion at ministerial level, again to my knowledge. I have written and edited many articles on the subject of gas to power and the benefits it could bring to the SA economy to minimise or even eliminate the catastrophic economic effects of loadshedding. No one in their right mind would want to worsen the environmental and health effects of generating electricity more than we already have, but there is no Utopia and burning methane is far less environmentally damaging than our current reliance on coal fired power stations - when they work. Despite the highly vocal support for

‘renewables’ - in SA that almost exclusively means solar and wind power - there is not one country in the world that relies on solar or wind to provide baseline power. If coal and nuclear (my preferred choice is SMR’s) are off the table then as few as three more 3 000MW CCGT power plants could overcome our immediate energy shortfall, if we had a reliable supply of methane gas. The two Eskom OCGT plants have proved their reliability operating 24/7 for the past 13+ years, running on diesel fuel - a greater pollutant and more costly fuel than methane. The latest technology machines will not only run on methane and diesel but also on hydrogen so why not? I, nor Cape Business News, does not receive any form of income or monetary reward from my particular support for a gas economy in South Africa. If there were health hazards attached to the extraction of methane at the two projects mentioned, I would certainly bring it to the attention of our readers, but there aren’t as the methods of extraction are different to those employed in Australia and the USA, I hope the foregoing provides some balanced response to your request.

Opinion piece: Ecommerce warehouse management - can you afford to keep it in-house?

By Tennille Bell, General Manager: Sales at Programmed Process Outsourcing (PPO)



ECOMMERCE in South Africa has grown significantly in the past two years. Spurred by necessity during the Covid-19 lockdown in 2020, consumers are now familiar with online shopping as roughly 70% of South Africans now shop online at least once a month. If fuel prices continue to rise, more South Africans will take advantage of shopping from home, which means that demands in the ecommerce sector from consumers are only going to increase. As demand grows, ecommerce players will need to reassess their Warehouse Management Systems (WMS) to be competitive in this space.

More demand, higher expectations
While this increase in online shopping in South Africa presents an enormous growth opportunity for retailers, wholesalers, and manufacturers alike, it will be necessary for organisations to reassess their entire value chain to address efficiency and cost issues. This will help them scale up to meet the increased demand from customers as well as an increase in their delivery expectations. If not choosing purely on price, customers are likely to buy from a seller that can deliver their order the fastest, which means there’s little time or space for errors in the fulfilment of ecommerce orders.

The pitfalls of in-house management
With ecommerce players that started small, there is a tendency to want to keep it all in-house, including warehouse management. While this does offer the business a sense of control, this function is likely to experience even more pressure, which means that there’s a heightened risk of error and mismanagement. It is also difficult for an internal warehouse function to meet shifting demands, particularly in peak shopping

seasons such as Black Friday and Christmas. **Identifying efficiency opportunities**
When examining their business operations to identify areas for efficiency improvement, organisations should look at their warehouse management function first. Unless it’s their core business, there is no real reason for a company to keep this function in-house. Outsourcing warehouse management is one of the most effective ways to increase productivity, using a Business Process Outsourcing (BPO) provider. Such a provider will step in, conduct an in-depth needs analysis, identify gaps in performance and provide solutions that assist ecommerce sellers in streamlining their operations.

Outsourcing to achieve efficiency
Ecommerce sellers do not have the luxury of time when it comes to getting it right by trial and error. By outsourcing their non-core processes to a specialist BPO provider, ecommerce players can refocus their attention on activities such as sales and marketing, which will increase competitiveness and open new market opportunities.

In addition to reclaiming time, organisations that make use of BPO providers to manage their warehousing function will also gain the benefit of complete flexibility. Here, using a warehouse management system and deep industry expertise, a BPO provider will help the business to anticipate and plan for fluctuations in demand. The BPO provider also assumes responsibility for accuracy, which is enforced by Service Level Agreements that specify a tolerable rate for errors or returns. **Customer satisfaction depends on ecommerce efficiency**
By implementing an efficient warehousing management system and streamlining processes for their clients, BPO providers help ecommerce sellers keep their promises to customers, and their effectiveness is measured strictly according to set KPIs. Given that profitability for the BPO provider depends on performance, their clients can rest assured that they will receive efficient service delivery that generates a higher revenue value as a direct result of outsourcing and optimising functionality within their supply chain.

First digital insurance solution for micro and informal businesses

SANTAM, South Africa's largest short-term insurer, has launched the country's first ever digital insurance solution for micro township enterprises, which will cost between R75 and R195 a month, providing these businesses with financial security and recovery in the event of a loss.

The Small-Micro and Medium-sized Enterprise (SMME) sector is an important growth engine for the South African economy. Yet recent statistics from a comprehensive study by the University of the Western Cape revealed that 70%-80% of local small businesses fail within the first five years.

Against this backdrop, Santam - in partnership with MoyaApp - has launched South Africa's first fully digital Emerging Business Insurance solution to support the flourishing township enterprise sector. Santam has recently refreshed its strategy, which among others, prioritises the usage of digital platforms to connect with policyholders, reaching out into new market segments, including the uninsured sector such as township enterprises, and supporting efforts aimed at narrowing the risk protection gap.



Santam's innovative entry-level digital insurance solution offers three cover options at different price points. The Starter solution is available at a monthly premium of just R75, the Standard option costs R125 per month and the Premium solution is available at R195. All options offer protection for stock and contents (due to fire, explosion, acts of nature, malicious damage and impact of objects), personal accident (the enterprise is compensated in the event of the owner's death or permanent disability) and political riot (F4 SASRIA cover), with the value of cover for each risk increasing relative to the package.

"The Standard and Premium cover options also offer cell phone insurance for the business owner's smartphone, which is an essential tool to ensure business continuity for township entre-

preneurs who often run their entire operation from their phone. However, the SASRIA cover is perhaps the most important feature of the Santam Emerging Insurance solution. Each package provides up to R500 000 of cover for special risks such as civil commotion, public disorder, strikes, riots and terrorism," said Gloria Tapon-Njamo, the Acting-CEO of Santam's Partnership Solutions business unit.

"Sadly, most township businesses simply do not have the means to withstand a loss and are forced to shut down. The reason most township micro businesses can't access funding is that financiers have no guarantee that they will be able to continue repaying their debt if something goes wrong, such as a fire or theft occurring. The fact informal businesses now have access to affordable, quality, formal insurance should make

them more appealing to financiers, enhance their growth potential and in the long run, their power to create more jobs. However, most critically in the short-term, it will allow them to stay in business and sustain themselves and their families, in the event of any unforeseen risks or interruptions," added Tapon-Njamo.

The Santam Emerging Business Insurance product will be available to MoyaPay clients from May 2023 and will become more widely available over the next three to six months. Businesses with an annual turnover of up to R2 million qualify for the Santam Emerging Business product. The product is entirely digital, with all processes from the inception of the policy to the lodging of claims managed entirely data-free through the MoyaApp.

Due to many emerging businesses being in rural or informal residential settings with no formal location - which insurers usually need to provide cover - the MoyaApp has a functionality which is able to pinpoint a person with no fixed or accurate address through an identifiable geo-mapped location finder.

Aon: Cybercrimes Act Report 2023

How the Cybercrimes Act 19 of 2020 impacts corporate South Africa

IN its latest report, Aon South Africa unpacks the legislative changes to the cyber landscape in South Africa in relation to the Cybercrimes Act of 2020. The report takes a deep dive into the exposures and risks corporates are faced with and how these cyber risks impact their operations and balance sheet.

Cyber security concerns highlighted in Aon's Cyber Security Risk Report, include:

Only 40% of organisations report having adequate remote work strategies.

Just 21% of organisations report having baseline measures in place to oversee critical suppliers and vendors.

Only 31% of organisations report having adequate business resilience measures in place to deal with ransomware threats.

Less than two in five organisations (36%) report having adequate levels of data security preparedness.

According to Zamani Ngidi, Cyber Solutions Senior Client Manager at Aon South Africa, the Cybercrimes Act 19 of 2020

creates cybercrime offences and prescribes penalties related to cybercrime. "It provides overarching legal authority on how to deal with cybercrimes, by regulating how these offences must be investigated which includes searching and gaining access to, or seizing items in relation to cybercrimes," Zamani explains.

The introduction of the Cybercrimes Act recognises that cybercrime is on the increase. The Act codifies offenses and consolidates cybercrime laws in one place.

"Essentially, it aims to stop cybercrime, keep people safe from criminals, terrorists and improve the security of the country.

The Act provides that cybercrime is seen as a criminal offence under South African law, which is a massive step in the right direction for South African businesses in terms of holding cyber criminals liable for their actions," says Zamani.

And while the Cybercrimes Act provides legal recourse for any company victimised by an act of cybercrime,



Zamani Ngidi.

the Act's relationship with the Protection of Personal Information Act (POPIA) could potentially create a myriad of liability and conflicting obligations when an incident occurs.

"We unpack these ambiguities in our 2023 Cybercrimes Act Report and how corporate South Africa can protect itself from cybercrime by implementing Aon's Cyber Loop methodology, which seeks to remediate concerns in a company's environment and reduce balance sheet exposure," says Zamani.

You can download the report by visiting: <https://www.aon.com/2021-cyber-security-risk-report/>

"A kilowatt saved is worth more than a kilowatt produced"

SPEAKING on the panel at this year's Enlit 2023 Africa even, *Utilising advanced technologies to improve grid reliability, efficiency and security*, Vladimir Milovanovic, Vice President, Power Systems Anglophone Africa at Schneider Electric emphasised that whilst the country is going through an energy crisis, there is also opportunity to take a different direction, learn from the mistakes in the past and map a more sustainable and progressive way forward.

"We are looking at ways to enable utilities to find solutions to current challenges whilst addressing sustainability goals. Four pillars that enable these are operational efficiency, reliability and resilience, grid efficiency and grid flexibility," said Milovanovic.

"Another key enabler is embracing digital technology, collecting the data from all our processes, analyse this



Vladimir Milovanovic.

vast amount of data using machine learning models to turn in into actionable information, and look at the current and future power provision scenarios in a proactive rather than reactive manner. This will also lead to more sustainable practices whilst meeting the critical goals of CO2 reduction."

Looking closer at the technology that will assist utilities; an accurate, unified and standards-driven model, built on a secure and robust digital platform, is key. For example, all smart grid applications should align with the IEC 61850 that defines

communication protocols for intelligent electronic devices at electrical substations.

Referring to above-mentioned first pillar, operational efficiency, Milovanovic noted tighter integration between the field workers and the control will offer quantifiable gains. "Field workers need visibility, whether it's with handheld devices or constant contact with the control rooms. It has been found that improved integration between field services teams and controls rooms can lead to a 60% improvement in productivity."

"A kilowatt saved is worth a lot more than a kilowatt produced. By being efficient and saving energy we are reducing transmission losses, distribution infrastructure losses, reserve capacity and most importantly driving down CO2 particularly in a country where we are still very reliant on fossil fuels for electricity generation."

SU's Herman Wasserman joins authoritative new global expert panel



Professor Herman Wasserman.

PROF Herman Wasserman, Chair of the Department of Journalism at Stellenbosch University (SU), has been invited to join a new international authoritative panel of experts who will address threats to the global information environment.

The International Panel on the Information Environment (IPIE) was officially launched on 24 May 2023 at the 2023 Nobel Prize Summit held in Washington DC.

The Swiss-based IPIE is an independent and global science organisation committed

to providing the most actionable scientific knowledge about threats to the world's information environment.

IPIE, chaired by Prof Philip N. Howard from the University of Oxford, brings together an unprecedented consortium of researchers from around the world as a global scientific effort to analyse systems of information manipulation and bias, provide neutral assessments on the condition of the global information environment and evaluate the best policy solutions for addressing threats to it.

Wasserman says that the establishment of this high-profile panel of experts is an indication of the importance of the issue of

the global information environment that affects societies around the world. "We are experiencing a global information disorder that is manifested in problems such as disinformation, hate speech and social polarisation. These problems pose a serious risk to democratic politics and the quest for equitable and inclusive societies. I look forward to contributing perspectives to the panel on how African countries are experiencing problems such as disinformation and geopolitical information manipulation, and to help highlight the research expertise that exists in Africa that can help us understand and address these issues".

Free online safety performance assessment for transport operators



IN a commendable move to promote road safety, leading certification body JC Auditors has announced that it will provide transport operators with free access to an online safety performance assessment tool. This initiative aims to assist fleet operators, especially smaller fleets, which often lack the resources to evaluate their overall safety performance. This online assessment would also enable an operator to identify its performance in relation to the Road Transport Management System (RTMS) National Standard.

The RTMS is a comprehensive framework designed to improve safety, efficiency, and compliance within the transport industry. It consists of several key pillars, including load management, driver wellness, vehicle maintenance, journey management, and driving behaviour.

By making this online safety performance assessment tool accessible, JC Auditors aims to enable transport operators identify and mitigate risks, which will not only help the individual business but also contribute improving South Africa's road safety record. The assessment tool comprises a series of carefully crafted questions focusing on the key pillars of RTMS. Operators can complete the online evaluation, the results of which will be available in a report detailing key risks and recommended improvement actions.

This valuable feedback empowers operators to identify potential risks and take pro-active measures to enhance safety standards within their operations.

Oliver Naidoo, Managing Director of JC Auditors, highlights

the importance of this initiative, saying: "It is vitally important that transport operators - regardless of their fleet size - have access to resources that can help them enhance their safety performance. By providing this online assessment tool for free, we aim to support South African fleets in adopting RTMS and holistically improving road safety and operational performance."

JC Auditors, who have been actively advocating for safe transport operations in the country, took the lead in discussing safe and sustainable road transport during the May Transport Forum they hosted.

Naidoo highlights four crucial outcomes from the event, shedding light on pressing industry issues. "First and foremost," he asserts, "we need to build capacity in SMEs to embrace safety systems as an integral part of business." The old adage that the strongest chain is only as strong as the weakest link rings true. Serious truck accidents often cause closure of national roads for hours on end - impacting other transporters (many of whom are professional, safety focused entities), as well as public road users. Such accidents have a negative social impact (fatalities and injuries) and also severely affect the overall cost of transport, contributing to inefficient supply chain which ultimately affects the economy. So, it is in the national interest that we should aim to gradually increase the number of safety-conscious, professional transporter on our roads. Additionally, Naidoo emphasises the growing need to promote initiatives aimed at changing driving culture within the industry.

Furthermore, it was observed that the transport sector often does not fully optimise telematics capabilities, despite its ability to identify high-risk behaviour - a matter that requires urgent attention. Lastly, he notes the importance of fostering increased stakeholder collaboration in collective efforts to improve fleet safety performance, which emerged as the fourth key takeaway.

Speaking at the online event, Dr Paul Nordengen, RTMS National Steering Committee chairperson, highlighted the significant advantages witnessed in the heavy vehicle transport sector through the adoption of the RTMS in South Africa. Dr Nordengen also reported on the significant productivity and safety gains observed in the Performance Based Standards (PBS) pilot project.

Annah Ngxeketo, the founder of SMME operator Mamoja Trading & Projects, said that since achieving RTMS compliance, challenges such as prolonged downtime, missed vehicle servicing, and driver incidents, have been effectively addressed through RTMS implementation. The company has implemented a comprehensive maintenance schedule plan that undergoes continuous monitoring. Additionally, they conduct route risk assessments, enforce a speeding policy, and ensure drivers are managed in a professional and progressive manner.

"The adoption and implementation of RTMS as well as other international standards play a pivotal role in enhancing road safety in South Africa and ensuring the efficient transportation of cargo throughout the country," concludes Naidoo.

Will Chat GPT impact critical thinking skills for the youth?

Artificial intelligence (AI) tools are here to stay so instead of seeing it as a threat, it should be seen as an asset

ARTIFICIAL intelligence (AI) tools are here to stay so instead of seeing it as a threat, it should be seen as an asset, but one that supports cognitive growth and memory function rather than replacing it, says Anna Collard, SVP Content Strategy & Evangelist at KnowBe4 AFRICA.

"Research by George Millar in 1956 found that the average person can only keep around seven items in their working memory," she explains. "Miller's Law of seven plus-minus two means up to nine or as little as five items are the limit of a human's processing abilities. Today, that number has gone down to four (<https://apo-opa.info/3MIOCHD>). This research, along with other academic papers and analyses (<https://apo-opa.info/3BvXPMQ>), points to reduced memory due to an over reliance on technology also called the Google effect," explains Collard.

This is a concern, one that has grown increasingly vocal over the past year as educators and researchers have pondered the impact of technology, and now AI, on cognitive behaviour and memory retention. However, it is also balanced by research that has pointed out that actually, human beings have been outsourc-

ing their memory to various materials and solutions for centuries. Paper, parchment, papyrus and wood are some prime examples. Modern technology is no different. It can be a tool to bolster memory and make it far easier for humans to manage lives that are deluged by information, noise and digital clutter.

"The research goes in both directions, suggesting that technology is both an enabler and an inhibitor of human memory," says Collard. "This points to the fact that actually, the impact does not lie in using it, but in how it is used or, in the case of ChatGPT, abused. The latter can be an immensely useful tool that supports students in their research and studies, but if it becomes the sole source of information and does all the writing for them, that is where the problems start."

Nowadays, remembering where you found a fact has become more important than remembering the fact itself. This translates directly into the biggest challenge with ChatGPT - it is vague on its sources and often out of date, which means that it rarely is as accurate as it needs to be.

"ChatGPT uses machine learning to infer information and this introduces inaccuracies," says Collard. "If you ask Chat-



Anna Collard.

GPT what happens if you break a mirror, it replies with 'You will have seven years of bad luck'. This is not a fact; it is based on superstition. If users do not constantly check the factual accuracy of ChatGPT, they run the risk of sharing fake news, inaccurate information and even conspiracy theories."

The TruthfulQA benchmark test has found that most generative models are only truthful 25% of the time, according to the 2022 Stanford University (<https://apo-opa.info/3o0ZCGJ>) Artificial Intelligence Index Report. This means over reliance on technology such as ChatGPT is simply going to make the

student's work look stupid. However, that is not enough to stop people from turning to tech when they are tired, overwhelmed or lazy, which means that the best approach is to embrace it.

"Do not ban it, rather teach students how to use it within practical guidelines and policies that help them to enhance their understanding of AI and this type of tool," concludes Collard. "This will enhance their own critical thinking skills by asking them to question the sources, content, truthfulness and accuracy of the content that the platform serves up to them, and it will turn the threat into an opportunity."

CT records fourth consecutive quarter of positive employment growth

MAYOR Geordin Hill-Lewis said the City was encouraged by decrease in unemployment in Cape Town, declining by four percentage point's year-on-year.

The latest Statistics SA Quarterly Labour Force Survey (QLFS) for January to March 2023 showed Cape Town's unemployment rate was 26% based on the expanded unemployment definition.

This was 0.9 percentage points lower than the previous quarter, and four percentage points lower compared with Q1 2022.

The City noted that it was the fourth con-

secutive quarter of positive employment growth for Cape Town.

"Our mission is to position Cape Town as a beacon of hope to show what is possible in South Africa. Decline is not inevitable; it can be halted and turned around. While too many people remain without jobs, we are encouraged by the drop in unemployment despite the record levels of load shedding impacting our economy," said Hill-Lewis.

In the first three months of 2023, there were 1.7 million people employed in Cape Town.

"Our mission is to position Cape Town as a beacon of hope to show what is possible in South Africa..."

The City said this took employment levels beyond the pre-Covid mark, and was the highest recording of employment in Cape Town to date since the implementation of the QLFS report in 2008.

Mayco member for economic growth, James Vos, said his team worked closely with critical job-creating industries.

"For example, the Investment Facilitation Branch has

secured new investments into Cape Town worth over R34 billion and thousands of jobs since its establishment in 2017. Through our small business support measures, we have also helped entrepreneurs across the city to access the resources they need to survive and thrive. Cape Town is building towards our vision of being a city of hope for all in a country that is facing harsh economic realities."

Colour is back

THEY say that if you wait around long enough, every trend returns. Coloured bathroomware is back – but forget the era of lava lamps and shag carpets, because 2023’s versions are light years away.

“These baths are created in Ceramic Industries’ state-of-the-art Betta Baths factory, using advanced vacuum-forming machines and robot spray arms.”

Ceramic Industries’ range of Gazania free-standing baths are leading the way with this trend, showing off a combination of clean lines and perfect curves that couldn’t be anything other than 21st century cool. But it’s the colours your eyes are drawn to first and, there again, the shades are contemporary. This time around, the colour trend has taken a much more measured approach,

and that’s certainly the case with Ceramic Industries’ cleverly chosen palette. Gazania is presented in a choice of 2023/4’s favourite tones. Indigo is strikingly cool, and can add an inviting intimacy and depth to

an otherwise monochrome room. Sage is understated but never boring, and can pair equally well with leafy tiles or contemporary concrete. Finally, Grey is all about subtlety, and has the flexibility to work with just about any contemporary bathroom look by virtue of the bath’s striking form. These shades give licence to really push the envelope when it comes to design possibilities. Baths can form the centrepiece to bathrooms, the object around which the rest of the room can be built, from a design point of view. These colours have been expertly calibrated to provide real inspiration for bold design, without ever dominating, and the skirt is finished with a matt texture, which adds warmth and informality to the clean lines. Gazania’s appealing palette is offset with a white interior, cleanly separated at the bath’s upper edge. It’s an arresting look, made all the more so by the bath’s absolutely seamless, one-piece construction. These baths are created in Ceramic Industries’ state-of-the-art Betta Baths factory, using advanced vacuum-forming machines and robot spray arms. Much of the process is automated for fine precision and to ensure consistency.

Adding to the minimal form is Gazania’s built-in chrome overflow outlet that’s sleek and discreet. After all, it would be a shame to spoil the crisp two-tone combination and modern lines of the bath with anything but a well-conceived piece of integrated hardware. We’ve seen colour creeping into bathrooms through the use of black, rose gold and brass tapware, and multicoloured terrazzo tiles, but these new bath designs are going to add a new level of pleasure. Ultimately, it’s about choice. The bathroom can be the most functional of spaces, or – as more and more people are choosing – it can be a place designed around self-care, and given as much aesthetic consideration as the front room. And colour is of the most powerful aesthetic tools available.

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Private developers buoyant in Western Cape



Artist impression of completed Azul Terraces development. Credit: Osmond Lange Architects.

The Editor reports

Amid the general doom and gloom in the construction sector nationally, it is reassuring that some private developers are exploiting a niche in the market in the Western Cape. What is even more encouraging for the local economy is that Belgian based

construction group Squareturn has established itself in Stellenbosch, seeing potential in mainly high end residential developments, prompted by international investor interest in the region and the widely publicised ‘semi-gravitation’ phenomenon of businesses and families relocating to the Cape Town environs. Squareturn is based in its own development - Devonbosch, in Stellenbosch, a mixed use residential, retail and commercial development on an 18 hectare site with 10 000m2 of new build being targeted annually over the next 5 – 10 years. Its Batanica development in Constantia is soon to come on stream with landscaping already underway in this Metropolis designed boutique security estate comprising just five exclusive properties of which one has recently been completed.

“The development comprises 55m2 to 120m2 units in a five storey up market development with covered sub-basement parking and storage facilities. Of the four penthouse units, three have already been sold and the apartment’s elevated location and balconies provides owners with spectacular views across Table Bay, Robben Island and Table Mountain.”

The complex 330m3 ground floor slab was cast in early May and when the writer visited the site towards the end that month, preparations were just days away from the pouring of the 130m3 second floor slab.

“Up market finishes, engineered timber floors and external fireplaces are presented in each of the apartments and the electrical design accommodates AC units and battery inverter systems as add-ons, with the penthouse units being solar PV “ready” should buyers wish to have such functionality. Other amenities include an outside entertainment area with a swimming pool and braai facilities” he concluded.

The writer has noted other residential developments in the Blouberg and surrounding areas giving rise to some optimism that the dour effects of Covid, loadshedding and the country’s economic stagnation may, in this area at least, be a glimmer of better things to come.

Azul Terraces

“Well on the way to completion is an 18 unit apartment development in Blouberg of which only four units remain unsold” explained Squareturn’s Senior Project Manager, Andrew Hoeks. “Piling for Azul Terraces began in January and steady progress by our appointed main contractor Grenco Projects instils confidence in achieving a completion date by December this year” he said.



Placing of second floor slab rebar reinforcing against idyllic Table Mountain vista. Credit: Andrew Hoek.

CERAMIC INDUSTRIES • GAZANIA COLOURED BATHS

dip into colour

Colour is one of the most powerful tools to bring joy to the bathroom, but it’s been off-limits for baths – until now. Gazania’s carefully chosen palette makes it simple to dip into colour with fashionable, understated tones that work with contemporary bathroom design.

GAZANIA GREY

INDIGO

Strikingly cool, with an inviting intimacy.

SAGE

Understated but never boring, and works with organic or concrete looks.

GREY

Strong on subtlety and flexibility to work with just about any contemporary bathroom.

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Northridge Coastal Estate

First GBCSA four star sustainable precinct in Africa



Northridge community food garden.

GARDEN Cities has a more than 100 year-old tradition of creating quality living environments that embody advanced planning and construction principles, and pay respect to their surroundings. The company has been responsible for 14 major suburbs in the Cape Peninsula and surrounds, with its newest project - the approximately 429-home Northridge Coastal Estate (NCE), a residential development in Sunningdale, on the western seaboard of Cape Town.

NCE has been designed to incorporate all the essentials of sustainable development that include: preserving the local biodiversity; planning for climate change; conserving energy, water and materials; enhancing community interaction and espousing smart city features.

It was awarded the first 4-star Green Star (Sustainable Precincts v1.1) by the Green Building Council of South Africa (GBCSA).

The estate has been shortlisted for the CIOB Big 5 Southern Africa Construction Impact Awards to be announced on June 27.

The following is an outline of some of the features that have contributed to Northridge Coastal Estate's importance to Green Building and sustainable development:

Adaptation and resilience

NCE aims to be resilient to the impacts of a changing climate and natural disasters, and several plans have been devised to ensure proper response to and mitigation of climate change and other adversities.

Sustainability Awareness

The Estate has an Environmental Education Centre, the main purpose of which is to provide a space for residents and members of the public to receive education and skills development. The Eco-Room incorporates Biophilic design elements that increase participants' connectivity to the natural environment.

The estate has a multi-functional clubhouse, where residents can hold meetings and a broad variety of other events. In addition, there is also an amphitheatre, Boules court, a picnic area and a sensory garden.

Ecological Value

An approximately 7ha conservation area has been created to protect the endangered Cape Flats Dune Strandveld vegetation. Residents and the public have access to the conservation area that features a raised boardwalk, lookout point and educational biodiversity signage.

Environmental Management

Integrated Water Cycle

The consumption of drinking water for other purposes is reduced by the provision of a treated-effluent infrastructure which will irrigate the parks. Each home is provided with two water tanks and grey-water-ready plumbing. One-touch taps are also installed.

Greenhouse Strategy

On-site renewable energy: Each house is fitted with an aesthetically-pleasing solar water heating unit to ensure that compliance is achieved with SANS 10400 XA. All the

street lights use LEDs

Recycling

Each home has a dual bin system built into the kitchen layout to ensure that recyclable and non-recyclable wastes are separated at source. Each house is also provided with a composting bin. Construction rubble is crushed and reused and waste separation is done on-site, decreasing the impact on landfills.

Heat Island Effect

At least 50 % of the estate will be landscaped. Specialised roofing tiles with a SRI value of 38-52 will be used to minimise the heat island effect in the estate.

Light Pollution

The street lights have an upward-light output ratio of less than 5% which decreases light pollution.

Active Lifestyle

Residents have access to a network of walking paths and cycling facilities connected to the dune thicket conservation area and trim park equipment. On the eastern side of the Estate is the Sunningdale servitude activity route which connects to external walking and cycling paths in Sunningdale.

Access to Fresh Food

The Estate residents will have access to a community food garden. There are five themed parks throughout the estate including the ocean, fauna, flora, historic context and community food. All planting is endemic to South Africa.

Community Development

A number of initiatives will be rolled out over the next few years to foster wellbeing and safety, social inclusion and social sustainability, to develop a community spirit within NCE. Homeowners will have access to a Community Users Guide as well as an estate app, 'My Estate Life', which will ensure that all residents always have the necessary information on hand. A memory stick with all relevant information is provided to the homeowners. A Community Development officer will be appointed to run various community projects and engagements.

Fostering an ethical culture for South Africa's built environment is an imperative



CESA President Olu Soluade and Acting Deputy Director General for Health at the Gauteng Department of Infrastructure Development, Realeboga Mahapa.

A discussion on ethics was part of Consulting Engineers South Africa's (CESA) Presidential Function held in Gauteng, on Thursday, 18th May. Inspired by a question from a young professional at the event, CESA President Olu Soluade explained that to change the current narrative of unethical practices in the built environment, required, at first, a change in the attitudes of individual professionals in the built environment.

Unethical practices and corruption in the built environment continue to have a direct impact on the growth, social wellbeing and financial health of South Africa's economy. A sustainable future depends on the country's ability to develop leaders with the highest ethical values and individuals refusing to be part of any corrupt activity.

"We are at a critical time in South Africa's history, where we find ourselves at a crossroads as a nation, there is an urgent need to start putting plans into action as we work together by collaborating to make a difference, but that difference has to start at home, it has to start with the individual, either as client or service provider," added Soluade.

Guest speaker at the event, Realeboga Mahapa, Acting DDG for Health - Gauteng Department: Infra-

structure Development, added that ethics should be introduced as a course into the built environment curriculum at tertiary education levels. "We have to develop a culture of ethics, and in doing so, assist in rooting out corruption. It may be an idea to even introduce higher CPD points for courses on ethics in the professional registration environment."

Philip Booyens, CESA Gauteng Branch Chairperson Elect, concurred and said that it was imperative to start lobbying our universities to introduce ethics as a course not just for engineers, but across all professions, to enable a culture shift of young adults who are the future torchbearers building and driving the country's economy.

However, the challenge of unethical practices and behaviour was not

unique to the country's built environment, explained Chris Campbell, CEO of CESA. "While I support the introduction of courses around ethics at a university level and in the professional environment, I must emphasize the need for it to be inculcated at home and school long before that time - so as to create a generation that is able to distinguish 'right from wrong'. In doing so, we can reverse the current culture that seems to be prevalent in South African society."

Creating leaders for the future, also hinges on the professionalisation not just of the State, but of the Private sector as well, explained Dr Vishal Haripersad, a CESA Board Member. "Engineers in South Africa have such an important role to play not just in this country, but across Africa. We need to create a

culture of African engineering excellence that will truly shape this continent. To do so, we need to pride ourselves as professionals, not just on paper - but in our behaviour, how we positively impact society and in the way we do business."

"With our strong belief in the capacity and capability of South Africa and African excellence, CESA is focused on ensuring that we continue to enhance the capacity of engineers, through the continued training and development of local talent. South Africa, and the Continent, has a young, enthusiastic and competent population, who should be included on the growth journey ahead - and each and every one of us, has a responsibility to help develop and enhance that journey," Haripersad concluded.

MIA launches Rent-to-Own solar solution

MIA, a provider of sustainable energy solutions, has launched its Rent-to-Own Premium Solar Solution, aimed at helping more South African homeowners access affordable and reliable solar energy systems.

With the cost of electricity on the rise, many homeowners are looking for alternative ways to power their homes. However, the upfront cost of installing a solar energy system can be a barrier for many. MIA's Rent-to-Own Premium Solar Solution offers a solution to this problem by allowing homeowners to pay for their solar system in monthly instalments, with no

upfront costs.

"We understand that the upfront cost of installing a solar energy system can be a significant barrier for many homeowners," said MIA CEO, Bryan Driessel. "That's why we're excited to launch our Rent-to-Own Premium Solar Solution, which makes it easier and more affordable for homeowners to access clean and reliable energy."

The Rent-to-Own Premium Solar Solution includes a range of high-quality solar panels, inverters, and batteries, all designed to provide homeowners with a reliable and efficient source of energy.

The system is installed by MIA's team of experienced technicians, who ensure that each installation is tailored to the specific needs of the homeowner.

"MIA's Rent-to-Own Premium Solar Solution is a game-changer for South African homeowners," said Driessel. "Not only does it make it easier for homeowners to access clean and reliable energy, but it also helps to reduce their monthly energy bills, making it a win-win for everyone."

With the launch of its Rent-to-Own Premium Solar Solution, MIA is confident that the new solution will help more homeowners to

make the switch to solar energy, and contribute to a more sustainable future for all.

MIA provides franchise prospects and has licensed installers across the country, including green card holding electricians, to ensure top-notch installation and solution quality. We supply equipment that is carefully matched to guarantee our clients receive a high-quality solution.

For more information about MIA's Rent-to-Own Premium Solar Solution, visit <https://mia.co.za/rent-to-own-premium-solar/> or contact cale@mia.co.za

The role of AI in consulting engineering



Sergio Castanheira.

ARTIFICIAL Intelligence (AI) is becoming quite predominant and is going to be a major player within the next few years, reflects Sergio Castanheira, Digital Lead – Enterprise Capabilities at infrastructure firm AECOM.

Tools like Chat Generative Pre-Trained Transformer, or Chat-GPT, can assist with routine tasks like report writing, translation or even coding, to a certain degree. “AI is definitely going to augment our current skill set,” Castanheira says AECOM already has an Australian team focusing exclusively on workflows and automation routines.

He points out that BIM software package Revit has included generative design components for a while now. “That is the general trend going forward, with AI becoming more prevalent. We will have to work with

AI at some point for sure. I do not think it is only going to be construction, but across the board.”

A lot has happened in the digital space since 2018 when AECOM hosted ‘The Digital Future’. The event showcased the potential of Virtual Reality (VR), Augmented Reality (AR) and Building Information Modelling (BIM) in the construction and consulting engineering space as the future of a fully integrated approach to project delivery.

“It was quite successful. Allowing clients to interact with the digital tools brought a whole new dynamic to the process,” reflects Castanheira. While Covid-19 did put the development of VR and AR on hold within the business, these tools are emerging again for use in design reviewing, construction planning and management.

AECOM’s Enterprise Capabilities’ Digital Hub consists of an applications team, an automation team and a BIM and information management team headed up by Castanheira, one of four global centres offering digital skills and services to the broader business.

“I have been privileged to have seen

the evolution of BIM within the UK construction sector,” says Castanheira.

It can leverage technical skills from other regions for specialist infrastructure projects, using digital technology to augment these skills. The South African office has adapted quickly to this change, with teams well positioned to support AECOM teams in other geographies.

Another area where BIM is making a major impact is sustainability. AECOM’s goal is to be operationally net zero by 2030. At present, 80% of the energy consumption of buildings is over their operational phase. Digitalisation allows carbon data to be embedded into BIM models from industry sourced databases.

This allows designers to select sustainable materials and equipment to drive down the expected carbon output.

These databases also facilitate better building simulations like energy analysis to reduce energy consumption, while at the same time making buildings more comfortable for occupants. Smart buildings using this embedded data can also operate these buildings more efficiently.

SA Trails Network paves the way to economic empowerment in the Western Cape



NOVEMBER 2022 marked the successful roll-out of Phase One by World Economic Forum’s award-winning SA Trails Network, in partnership with Imperial - a DP World Company - and Devonbosch Property Development Company (Pty) Ltd, to develop and continue to link a community based trail that will help connect surrounding communities. So far, over 640km of trails have been linked from Paarl to Franschhoek to Stellenbosch and are already being used regularly by pedestrian commuters, school-goers, runners, hiking parties, horse riders and cyclists.

“This initial phase has been instrumental in empowering and uplifting the surrounding communities through jobs and micro-enterprises created, while also providing safe access for commuters. Through the development of this safe off-road passage, SA Trails Network compliments government’s mobility policy that highlights the development of non-motorised transport networks while supporting their role in community upliftment. Through the support of SquareTurn Developments (a South African subsidiary of the Belgium based SquareGroup company) and the new Devonbosch Development in this region, we believe this initiative will also bring much-needed, safe adventure tourism revenue to the country over time,” explains Reghard Goussard, Founder of Trails SA Network NPC and part of the SquareTurn development team responsible for the development of Devonbosch.

Unequivocally

pledging their support for this community-focused project, the Department of Economic Development and Tourism said in an online statement, “The proposed linkage of multi-use route networks across the Western Cape fits into the gaps and opportunities identified by the Tourism Blueprint 2030. The potential benefits of the project include not only economic growth and job creation, but also the upliftment of local communities and reinforcing the Western Cape as the ‘Adventure Capital of Africa’.”

According to Goussard, the first phase of this ground-breaking trail network is progressing well as they expand through Drakenstein and they have also received a lot of support from different municipalities in the region. City Manager, Dr Johan Leibrandt, conveyed his support of this initiative by stating, “The expansion of this trail through Drakenstein will enhance our product offering and we acknowledge the importance of this project to unlock further job opportunities.”

While the primary

intention is to provide the communities’ families and children safe passage to and from Devonbosch as well as all surrounding areas; there are also plans to connect these trails to the already popular and well-established Bottellary Conservancy that

offers cyclists access to trails on private working wine farms. Anthony Barnes, Acting Municipal Manager, added his voice and stamp of approval saying, “Stellenbosch Municipality recognises the budding potential this initiative presents to unlock various tourism and job creation opportunities. Stellenbosch Municipality is pleased to express in principle its support for the focus of this project.”

The Cape Winelands District Municipality highlighted the benefits of these new trails, explaining in a statement that “this creates safe commuter passages for commuters, residents and tourists”, and added that this network will also draw tourists to the Western Cape and ultimately contribute to increasing the GDP of the area and province.

Since the inception of the trails there has been a significant decrease and prevention in poaching, bullying of kids, muggings of trail users, cable theft, drug trafficking, and deaths of women and children caused by violence and speeding on the roads. The trails have also contributed to the early detection of fires in the area.

“We are excited about the potential and benefits to the region and people in this area that the new Devonbosch development will bring with the

trails being the first of a number of initiatives planned to roll out. In line with SquareTurn’s mission of not just creating developments, but rather delivering change in the areas we operate in, we intend on making this area a hive of activity and positive change. Ultimately we want all trails in the area to lead to Devonbosch”, concludes Jean Pierre Nortier - CEO, SquareTurn Property Developers.

The first of a number of residential offerings within Devonbosch, the Piazza, broke ground at the end of November offering investors and homeowners the opportunity to buy into one of 36 designer apartments starting from R1 575 000 – with nine of these apartments already sold.

Devonbosch is positioned alongside Stellenbosch, Paarl and Franschhoek and this development will offer its residents a hub of activities on its doorstep that includes a natural lake and vast areas of wetlands, bespoke retail, restaurants and cafes, the winelands first-ever surfing without wind or waves creation, catch and release fishing, mountain biking, hiking and running trails, green parks and adrenaline pumping activities for all ages – to be developed to name just a few.

For more information visit www.Devonbosch.co.za.

#BestOfTheRest: Western Cape’s local government’s clean audits

ACCORDING to the most recent Consolidated General Report on Local Government Audit Outcomes for 2021/22 released recently by the Auditor General (AG), 21 out of the 30 Western Cape’s local municipalities received unqualified (clean) audits with no findings, and 6 municipalities received clean audits with findings.

“This means 90% or 27 municipalities in the Western Cape can account for their budgets. They can confirm where each Rand of public money has been spent. This is the result of many years of hard work to design and maintain strong financial systems and ensure the right people with the right skills are employed in critical positions.” Western Cape Minister of Local Government, Environmen-

tal Affairs and Development Planning, Minister Bredell said.

Minister of Finance and Economic Opportunities, Mireille Wenger, said: “We are proud of the relatively strong financial performance of municipalities in our province, and are committed to investing in further strengthening their financial management capability so we can do even better going forward.”

“To assist with this goal, the Western Cape Financial Management Capability Grant (WC FMCG) supports municipalities to improve their overall financial management capabilities. This will in turn strengthen their ability to deliver services and enable growth,” continued Minister Wenger.

Provincial Treasury follows a differentiated

approach in supporting municipalities through the WC FMCG. “This means that while allocations are mostly directed towards projects that reduce general financial vulnerability, municipalities in good financial standing are also supported to lead on the development of best practices that can benefit more municipalities in future,” confirmed Minister Wenger.

Minister Bredell believes that municipalities which consistently achieve clean audits should be recognised and rewarded by the Auditor General and National Treasury.

“Municipalities that have over time proven they can be trusted with public money should be managed in a more mature manner with less reporting red tape from the Auditor General.

We value your input

Only through your input can we continue to improve.

- Comments
- Suggestions
- What would you like to hear about

editor@cbn.co.za

An “abrasive” journey with Grinding Techniques in the foundry process – from conception to finishing

THE metals casting, or foundry operation is an amazing and intriguing process where abrasives play a very important role throughout the entire foundry process.

With processes becoming more mechanised and controlled, throughput and quality remains the most critical elements in the foundry process, although the fundamentals of creating a masterpiece in metal has for the most part, remained unchanged.

Based on the design and type of casting method selected, tooling in the form of a pattern may need to be manufactured. These patterns are mostly made from wood, “housing” the sand, and resembling the positive impression of the casting as well as any cores that may be required. Abrasive solutions used in this process include coated abrasives in sheets, rolls and discs, for pri-

mary and secondary finishing of wooden and metal parts.

Grinding Techniques offer a complete abrasive basket that caters for all the Foundry applications and more.

When using scrap metal in the melting process it is vitally important to use high quality, fit-for-purpose abrasive cutting discs for chopping metal scraps to eliminate some of the contaminants, before melting. It is equally important to select metal specific abrasive products to eliminate any potential contamination (such as processing Aluminium scraps with products that contain ferrous contaminants). Once the metal has reached the desired melt stage and has been tested for chemical make-up and impurities, the molten metal can be poured. This is when the moulds are filled with the glowing hot metal and allowed to cool.



Once sufficiently cooled and solidified, the fresh castings will be removed or ejected from their moulds and potentially shaken to remove all the remaining sand or other moulding materials. One such technique for initial cleaning is shot blasting. At this time, the sprues, gates, and risers can either be broken off or cut off with abrasive cutting discs. Depending on the size, either angle grinders or larger, engine driven machines can be used with cut-off discs to remove the excess. Rough grinding of any burnt-on sand can

also be done by using a specialist angle grinding discs. The Superflex and Andor range of products boasts an extensive range suitable to any cutting or grinding application.

Following the initial cleaning process the casting now needs to be fettled for further processing. Where large amounts of material need to be removed, resin bonded snagging wheels are the industry standard. Depending on the metal cast, these are manufactured with a number of abrasive grains. Newer technology Ceramic grains

are proving to be the premium go to product as their stock removal rate is substantially higher, while keeping the casting much cooler. Smaller areas of metal removal can be conducted by utilising a handheld abrasive angle grinding discs, also available in various grit and grain derivatives depending on the metal and application.

For very small or hard to reach areas, we offer various shapes and sizes of abrasive mounted points and tungsten carbide burrs.

Not all castings are finalised at the rough

stage though, some castings require further machining to achieve the desired result. Milling and turning can be done to extreme tight tolerances on CNC machines. Some components that require an abrasive finishing, such as automotive crank shafts must be ground and polished, first with a vitrified bonded abrasive grinding wheel and then with coated abrasive belts.

Cylindrical components can be internally and or externally ground with various sizes, grades, and grits of abrasive grinding wheels. Large surfaces that need to be absolutely flat can be surface ground with abrasive wheels, cups or segments. These abrasive products are made from a range of conventional (Aluminium Oxide, Zirconium Alumina, Ceramic) and super (diamond, CBN) abrasives based

on the application and end product requirement. Non-woven and mounted abrasives are available for applications requiring finer, more precise finishes, and where smoothness to the final finish is imperative, polishing points are also available for super-finishing of dies.

Our abrasive basket offers complete solutions to all foundry markets. Our products are locally manufactured with only the best raw materials, for maximum output, we offer the perfect balance between cost and performance.

With Superior products, Specialist advice and excellent service and stock levels, trusting Grinding Techniques in YOUR foundry process will make the difference.

Further information can be found: Tel: +27 11 271 6400, Email: info@grindtech.com, Website: www.grindtech.com

CCSA publications provide plastering guidelines



Successful plastering is a desirable – but often elusive – objective in the building sector. CCSA provides guidelines on plastering in two free leaflets.

CEMENT & Concrete SA (CCSA) has among its extensive list of publications two leaflets which deal with plaster problems which have for decades been among the most frequent technical inquiries received by CCSA and its predecessors.

Hanlie Turner, Business Development Manager of CCSA, says many building contractors are not sure how to evaluate acceptable plastering, mainly because there are no formal standards or regulations covering plaster quality. “This makes it

difficult for home-owners and other clients to force a contractor to make repairs,” she states.

In addition to the tuition in plastering provided by CCSA's School of Concrete Technology in its regular training courses, CCSA publishes two free downloadable leaflets with detailed guidelines on plastering:

Successful Plastering provides the technical information necessary to ensure that plastering is done correctly. It deals with selecting materials (including

“Common Defects in Plaster discusses how to assess if a plastering job is acceptable and covers the most common defects in this part of the building process.”

assessing the suitability of sands), calculating mix proportions, and provides instruction for the preparation of the surface of various substrate before the plaster is applied;

Common Defects in Plaster discusses how to assess if a plastering job is acceptable and covers the most common defects in this part of the building process. The leaflet includes advice on structural and

non-structural cracking, debonding, lack of hardness, grinning (when mortar joints are clearly visible through the plaster), expansion and popping. The causes and repair method for each problem are discussed.

Free copies of these two publications can be downloaded from the CCSA website www.cemcon-sa.org.za or for more information, phone 011-3150300.

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Quality systems underpin Concor's build-to-last approach

QUALITY construction is the foundation upon which infrastructure and buildings can stand the test of time, providing the most value for all stakeholders including clients, users, and the broader economy.

David Akinnusi, Quality Manager at Concor Construction, highlights that this principle is at the core of the company's build-to-last philosophy. With its track record of more than 150 years of construction experience, Concor continues to imbue quality through its depth of expertise and dedication to quality assurance and quality control (QA/QC), says Akinnusi.

"Looking back at the iconic landmarks we have built over the decades, our commitment to this philosophy is well proven," he says. "These mega-structures range from the



Work on the Trevenna Super Basement project was undertaken applying stringent quality control processes.

Greenpoint Stadium in Cape Town and Pavilion shopping centre near Durban and the mega Menlyn Mall, to our current work on the Msikaba River bridge in the Eastern Cape."

He highlights the key elements of Con-

cor's quality control systems as being its detailed systems and procedures which ensure operational standardisation across all projects. The company puts designated QA/QC personnel on each project, to moni-

tor and ensure compliance to internal and external requirements and specifications.

"At the planning stage, for instance, our contract directors and estimating teams undertake detailed tender reviews – to

fully understand the project's resourcing, scheduling and costing requirements," he explains. "Drawings are then generated at design stage for construction by professionally registered engineers, with col-

laborative efforts to identify and address any constructability concerns."

Strict quality control plans are also compiled for the execution stage and agreed upon by the contractor and client. These plans outline the specific testing and inspection that is required for the different trades employed for each project. This attention to detail continues through the handover stage, when the structures are handed over to clients through trade data book reviews.

Concor applies a rigid non-conformance system that determines root causes of defects, as well as corrective and preventative measures. Post-project reviews are conducted to ensure that lessons learnt are effectively captured and applied to the next project. The company is also transitioning to digital

inspection systems for improved efficiencies and data analysis.

Akinnusi emphasises that Concor's quality regime is aligned with world class industry standards, including being certified in terms of the ISO 9001 quality management standards. This keeps its management systems in line with the highest international requirements; it does the same in the fields of health and safety (ISO 45001) and environmental management (ISO 14001).

"These standards ultimately give effect to the quality of structures we build for our clients," he says. "We are also members of well-established and credible construction industry bodies such as the Master Builders Association, the Construction Industry Development Board and the Green Buildings Council of South Africa."

Reducing the cost of wind turbine foundations

NON-linear finite element analysis (NL-FEA) can save up to 30% in steel reinforcement costs for concrete structures for wind turbine foundations. Consulting engineering and infrastructure advisory firm Zutari is already achieving this cost-saving level on a renewable energy project in Madagascar, says Professor Pierre van der Spuy, Associate, with Zutari.

Sourcing materials for such a remote location is logistically complex, adding significantly to the total project cost. Any possible saving has a much more significant impact than the material cost alone. While NL-FEA is not intended as a mainstream design solution, it is ideal for special structures like wind turbine foundations.

Given the large number of renewable energy projects South Africa plans to have up and running within the next couple of years, optimising these at the design stage will fast-track the rollout and reduce costs.

A standard wind turbine foundation contains about 120 kg of reinforcement per cubic metre of concrete, equating to about R1.5 million



Professor van der Spuy.

of reinforcement per foundation. Using NL-FEA design to reduce the reinforcement per foundation by up to 30% for a wind farm of 30 wind turbines equates to a staggering R13.5 million saving, plus a significant reduction in the carbon footprint.

"We are trying to be more accurate in looking at prestressed or reinforced concrete structures to reduce the project risk. The result is considerable savings for both client and contractor," says Professor van der Spuy.

Conventional FEA packages operate in the linear-elastic regime of concrete and other materials. On the other hand, NL-FEA develops accurate material models for concrete that consider softening post-yield until ultimate failure occurs.

"Rather than being conservative in our approach towards con-

crete structures, we aim to be more accurate," highlights Professor van der Spuy. Concrete is a non-linear material that resists tension but endures compression. Therefore, capturing its true behaviour as a material is difficult with conventional FEA packages.

"By adopting NL-FEA instead, we can utilise the material's true properties in a way that cannot be done otherwise in a linear method or through hand calculations, both methods that err on the side of caution," says Professor van der Spuy.

NL-FEA dives into the heart of concrete, presenting opportunities in other areas like forensics. "Fortunately, concrete structures do not collapse that often. In such situations, we can look at the behaviour of a specific part of a structure and achieve much more accurate results than with standard methodologies," says Professor van der Spuy.

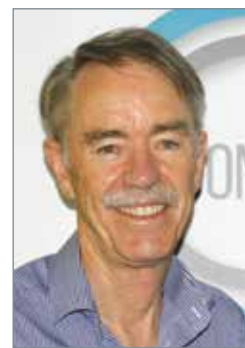
Another application is bridge engineering, where many of South Africa's bridges are 50, 60 and even 70 years old. Assessing these structures using conventional methods often recommends that they be demolished or

strengthened as they no longer comply with modern criteria and standards. However, NL-FEA is far more refined and accurate in looking at particular sections only, preventing the entire structure from being condemned.

It is even possible to apply NL-FEA to other concrete-intensive infrastructures such as dam walls, which typically have heat problems as the concrete hydrates. "The software even allows us to model cooling pipes in concrete," says Professor van der Spuy. Regarding wind turbine foundations, NL-FEA design can be used to tweak the geometry so that any heat build-up is dissipated toward the edges.

"It is a bit more effort from the design perspective, but the benefit is so vast from a construction perspective that additional design costs are easily offset." Zutari is not reinventing the wheel, as a European company is already using the method for wind turbine foundation design. "We are bringing this methodology to the local market as an affordable design option with significant benefits," concludes Professor van der Spuy.

CCSA guidelines on the safe usage of cement and concrete



Bryan Perrie.

AS with many building materials, there are noteworthy potential risks involved in handling or working with cement or cement mixes, says Bryan Perrie, CEO of Cement & Concrete SA (CCSA). Perrie says when dry cement is exposed to water a chemical reaction called hydration takes place, resulting in an alkaline mixture that can be caustic.

"This could cause alkali burns on the skin so safety measures should be observed to prevent fresh concrete or its bleed water contacting the skin," he cautions.

Perrie says other organic body tissue (for example, mucous membrane) can also be attacked by strong alkalis, leading to burns.

"The use of cement inevitably creates dust, as from operations such as handling

aggregates or cutting concrete. This dust is suspended in the air in the working area and inhaled by people on site, potentially causing irritation of the nose and throat, as well as eyes. So, airborne cement dust should be kept to a minimum but should this be impractical, goggles and dust masks should be worn.

"Many aggregates emit fine silica dusts created when crushing or handling these aggregates could cause lung problems, and precautions should be observed to avoid breathing in such dusts.

"Dust from demolishing or cutting hardened concrete may contain unhydrated cement and could cause respiratory problems."

"In addition, if the coarse or fine aggregate used in making the concrete contains crystalline silica, inhaling these fine silica particles could expose workers to occupational lung disease. The use of suitable respiratory protective equipment such as dust masks is recommended," Perrie adds.

He adds that particular care should be taken to ensure that:

* Normal and pro-

ective clothing does not become soaked with wet concrete or concrete fluids as this could result in extended exposure leading to skin tissue damage that can be severe; and

* Workers do not kneel on fresh concrete during placing, compacting and finishing operations. If kneeling is unavoidable, thick waterproof kneepads should be worn and a kneeling board used to prevent the pads sinking into the fresh concrete.

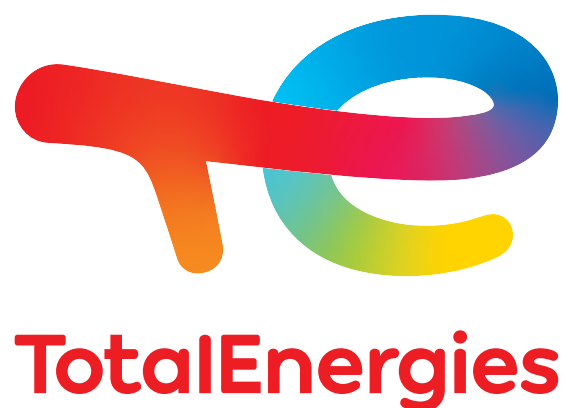
"Protective clothing should also be regularly and properly washed to keep it clean and free of concrete. Any areas that have been accidentally splashed with wet concrete should be rinsed clean with water as soon as possible," Perrie states.

"Guide to the safe use of portland cements and concrete", a free leaflet that identifies the areas of risk, provides guidance on how to avoid unprotected exposure, and outlines basic first aid procedures, can be downloaded free of charge from the CCSA website: www.cemcon-sa.org.za. or email info@cemcon-sa.org.za for more information.



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IPR adds Toyo heavy duty slurry pumps to its line-up



Ruaan Venter, Business Development Manager at IPR, with heavy duty Toyo DPH pump and hydraulic excavators.

JET Park-based pump and dredging specialist IPR has been appointed by Toyo Pumps Europe (TPE) to market the leading Toyo heavy duty slurry pump range in southern Africa.

IPR's established presence and reputation in the market – as well as its capacity to support customers – was the basis for TPE's choice of IPR as its official distributor in the region, according to Edoardo Palmisano, Business Development at TPE. Increasing sales in Africa is an important part of TPE's development strategy, says Palmisano. Based in Belgium, TPE is a subsidiary of Japanese company Toyo Denki Industrial, which man-

ufactures Toyo pumps. TPE manages the distribution of Toyo pumps in Europe, Middle East and Africa.

"South Africa is one of the countries we have decided to focus on," he says. "We have appointed IPR as our distributor because it is a serious and dynamic company which is a well-known name in the pump rental and sales market."

He also praised IPR's "pragmatic and positive approach" – and highlighted the value of IPR not only selling Toyo pumps but also renting them to customers. The Toyo brand is recognised globally due to its high quality, robust construction and efficiency in dealing with abrasive material, offer-

ing the largest range in this type of heavy duty slurry pump.

"TPE is mainly present in north, western and central Africa with pumps in applications such as dredging and transporting slurries and other abrasive liquids," says Palmisano. "We have also been selling Toyo pumps in South Africa, but not through a continuous local distribution channel."

Ruaan Venter, Rental Development Manager at IPR, highlights the benefit to customers of having access to the Toyo range. These heavy duty slurry pumps are engineered to handle solids that have settled out of fluid suspension, he explains, a situation where conventional pumps often fail.

"The pumps feature a patented built-in agitator that lifts the sediments and creates a homogenous slurry mixture which enables continuous pumping of slurries with high solids concentrations," says Venter. "Their quality and reliability, combined with IPR's application expertise and maintenance capability, ensure a winning partnership that puts customers first."

Partnerships mark progress into Africa

SEW-EURODRIVE South Africa is getting closer to customers and building stronger direct partnerships – to push modernisation and efficiency.

"It just makes sense for our customers to have direct access to the OEM," says Jonathan McKey, National Sales and Marketing Manager at SEW-EURODRIVE. "This is particularly relevant in Africa, where distances to sites can be lengthy and the infrastructure is often limited."

He points out that SEW-EURODRIVE in South Africa is already serving large multinational corporations around Africa who have global agreements with SEW-EURODRIVE at head office level. These customers are active in industries such as food and beverage, automotive, mining and specialised machinery.

"Big international customers want to know that all their subsidiaries around the world can receive the same high quality of service for their SEW-EURODRIVE equipment," he says. "The same applies for any size of customer; Africa is now demanding higher levels of technical support, especially in those



In addition to offering modular products, SEW-EURODRIVE can offer purpose built products such as the air-cooled condensers that would be used in dry cooling towers.

countries experiencing economic growth and technological advancement."

Placing its own people on the ground around Africa will enhance to value to customers, says McKey, especially with SEW-EURODRIVE's continuous development and 'zero complacency' approach to innovation.

"Our research and development cover a wide range of fields that can benefit customers – from gearing topography to specialised gearbox oils," he says. "With more sophisticated tools to analyse our own products, we have been able to offer customers even higher reliability as well as improve-

ments in aspects such as torque demand."

SEW-EURODRIVE has some of the most advanced technology for monitoring the condition of drives, paving the way for customers to apply more proactive maintenance. Raymond Obermeyer, Managing Director of SEW-EURODRIVE South Africa, highlights that Africa is generally well advanced in digital communication.

"Access to the cellular network makes everything possible, from selecting and buying gearboxes to monitoring and analysing their performance remotely," says Obermeyer. Indeed, the range of SEW-EURODRIVE equipment

has been designed to use multiple communication methods, and to communicate to every device from SCADA systems to computers and mobile phones. Systems like DriveRadar® can therefore be installed on a product and monitored from anywhere in the world where there is a data signal.

Given this depth of technology and innovation, McKey emphasises that direct contact with customers is preferable to working through a 'middle man'.

"We have invested in our in-house Drive Academy to provide skills development in-person at our Johannesburg facility or remotely," he says. "This creates a symbiotic relationship with customers, where we support each other in the trend towards modernisation."

This applies to the company's modular ranges as well as to its purpose-built products – such as the air-cooled condenser (ACC) solutions. Greater in-house expertise also ensures that constant advancements are brought to customers' attention. A recent example of this was the evolution of the robust X series industrial gear units to the state-of-the-art Generation X.e units, delivering new possibilities in performance, safety and efficiency.

Obermeyer points out that the most advanced SEW-EURODRIVE products are already found all over Africa and company's expectation is that this equipment is supplied and maintained to the same highest standards anywhere in the world. The growing footprint of SEW-EURODRIVE branches across Africa will ensure that this is achieved, he says.

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Smart, flexible laser scanning technologies



A salt dissolving plant – a typical application of 3D scanning.

SPECIALIST global technology partner, thyssenkrupp Uhde, complements its EPC (engineering, procurement and construction) and modularisation capabilities and services with the supply of a comprehensive range of intelligent, cutting-edge laser scanning solutions.

It is essentially a quick and efficient way to build a “Digital Twin” which can be used by customers in day-to-day operations, training and planning for new projects within the plant. Once gathered, the data is imported into 3D software programme and analysed by trained specialists, states Sundip Lokhande, Senior Piping Engineer at thyssenkrupp Uhde. “Our EPC and modularisation capabilities enable us to add further value, offering our customers an end-to-end solution,” asserts Lokhande.

He provides some insight into how laser scanning technology works: “Point clouds’ data is generated from the surface of an object captured by scanning from various angles. A typical plant will require multiple scans, which are then registered or ‘stitched’ together into one unified 3D model.”

thyssenkrupp Uhde’s scope of supply to meet end users’ unique and individual scanning requirements includes short and long range, 360 degree, 3D and thermal scanning as well as the option of using drones for the scanning of tall structures. Imagery can be captured in black and white as well as in colour. At thyssenkrupp Uhde, customers can always be ensured that the latest scanning technology is employed at all times to ensure the best possible results.

The extreme versatility of laser scanning makes this technology ideal for a host of applications and industries. It offers a fast, convenient, efficient and cost-effective solution for basically any site that operates bulk materials

handling equipment, including mines, oil and gas and chemical plants.

This technology is also highly effective for challenging and complex plants and projects. Long range scanners, which can scan up to 100m with great accuracy, are utilised for plants with limited access. “We can essentially scan anything on a plant - from reclaimer drums and pipes to furnaces and hand-rails. Moreover, materials such as steel, aluminium and metal can be scanned,” affirms Lokhande.

Further unpacking the application of laser scanning, Lokhande says it can be utilised for accurate design of new (green field) plants or existing (brown field) plants including modifications and revamps. “The technology also enables us to conduct fault detection and damage assessment of machinery including day-to-day operational wear and tear, deflections and deformations.”

By combining laser scanning with thermal imagery i.e. by adding a thermal camera, thyssenkrupp Uhde is able to detect potentially hidden faults and other heat-related stressors in furnaces (refractories) and boilers. Lokhande explains that when cracks form in the refractory, heat passes through and heats up the body of the vessel leading to potential failure. “We scan the equipment from outside to detect the crack in the refractory with the problematic hotspots. As furnaces cannot be opened and need to operate continuously, our cutting-edge scanning technology can be done while the furnace is fully operational. As part of our preventative maintenance programme, we can determine the scope of repair and length of time required and thereby prevent unexpected catastrophic and costly failure. The customer is able to plan

the necessary shutdown and keep downtime to an absolute minimum.” Lokhande adds that thyssenkrupp Uhde’s EPC capabilities enable them to take care of all the necessary repairs.

Laser scanning technology also assists thyssenkrupp Uhde with its modular build solutions. “We design and build complete modular plants or sections of plants off-site in a safer, more spacious environment,” explains Lokhande. “The completed modules are then moved to their final destination on a plant site. Utilising our scanning technology, we are able to plan the modular build down to the very last detail with extremely high accuracies and tolerances.”

Analysis of scanned data by trained thyssenkrupp Uhde specialists allows for detailed planning including the identification of existing infrastructure in a plant, determining module dimensions, as well as how the module will be transported to the site, including the route.

Once the module reaches site, the scanned data also indicates how the module will be positioned on site. For example, limited access may negate the use of a crane, favouring a SPMT (self-propelled machine transporter).

thyssenkrupp Uhde can also assist customers who require modifications on old plants where the as-built technical documents are no longer available, using laser scanning technology to obtain as-built information (record drawings) of the plant. Lokhande points out that it can take weeks to measure on site with the added risk of injury. “Laser scanning offers a fast, accurate, cost effective and time conscious solution. It takes only 2 minutes per scan to capture an image and build a new 3D model!”

thyssenkrupp Uhde partners with a specialist drone company to scan difficult to reach areas as well as tall structures. Lokhande explains “Scanning provides us with heaps of data which is filtered by our specialists to remove unwanted data; all scans are then stitched together to form one scan. This exercise is very challenging and requires expertise, time and sometimes patience, too!” concludes Lokhande.

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

New lubricants for farmers

BMG launched two new agricultural specific lubricants at Nampo 2023 – a corn head grease and a transmission flow grease – both of which form part of BMG’s Boerslim/Smartfarming portfolio.

“The purpose of any lubricant - which may take the form of an oil, a grease or a solid - is to separate the mating surfaces and thereby reduce friction and wear,” explains says Carlo Beukes, Business Development Manager, Agricultural, Automotive and Lubrication divisions, BMG. “For this reason, BMG specialists consider lubrication to be one of the most important aspects of efficient agricultural equipment performance and machinery maintenance programmes. Not only do lubricants, oils and greases extend the service life of machinery and equipment, but they also play an important role in enhancing performance of components, like bearings and industrial gearboxes.

“It is important to take cognisance of factors, such as speed of relative movement, ambient and operating temperatures, loading, vibration and the environmental operating conditions.”

BMG’s new Corn Head Grease, from Habot, has been especially formu-



BMG launched two new agricultural specific lubricants at Nampo 2023 – a Corn Head Grease and a Liqui Moly Flow Grease – both of which form part of BMG’s Boerslim/Smartfarming portfolio.

lated for the lubrication of corn head gearboxes on agricultural machinery and an important benefit is it meets John Deere J-13 E6 specifications for its latest harvesters and is 100% compatible with the OEM John Deere grease.

This extreme pressure grease has a NGLI Polyurea agent, which is a high-viscosity lubricant formulated to withstand the demanding conditions of corn harvesting. This thickening material makes it impossible to mix with other grease types, like lithium. This grease helps to reduce friction, prevents metal-to-metal contact and protects against rust and corrosion.

BMG’s new Liqui Moly Transmission Flow Grease LP00 is based on lithium soap, with highly effective additive packages, as well as EP and adhesive additives. This flow grease, which can be used in transmissions in which a semi-liquid lubricant is particularly effective, is resistant to aging and offers corrosion and wear protection.

Advanced high-pressure additives ensure dependable use in transmissions, even with high surface pressure. This flow grease, which can withstand an operating temperature range between -30°C and +120 °C, is particularly suitable for the lubrication of normally stressed trans-

missions and gear couplings which operate at low to normal rotational speeds, under dusty and damp conditions.

BMG’s extensive range of lubricants has been carefully selected to improve performance of equipment and machinery; to minimise operating costs and reduce maintenance requirements in heavy-duty applications, including harsh, dusty farming conditions.

For further information contact Carlo Beukes, Business Development Manager, Agricultural, Automotive and Lubrication divisions, BMG Email: arlob@bmgworld.net

Rand Air expands its equipment rental footprint

RAND Air celebrates its 50th anniversary in 2023 coming off two consecutive record years; the business is also a kingpin within the global Atlas Copco specialty rental division.

Newly appointed GM at Rand Air, Karel Verstraeten, describes the company’s success story in South Africa as nothing short of spectacular.

“The brand is extremely well-known and respected for its rental fleet of world-class quality, reliable and efficient machines, matched by equally excellent service solutions. Rand Air has cornered the local rental market,” notes Karel but quickly adds that there is no time for complacency as there is always more exciting business out there. Karel, who has an engineering background, joined Atlas Copco’s Portable Energy Division in 2011 before being employed as PC Business Controller in Sweden followed by the position of Regional Business Controller for Power Technique SEA and Oceania in Singapore.

Leaving Bangkok as Business Line Manager, South-East Asia, Karel comes to South African shores with a vision to expand the Rand Air rental experience to customers in the rest of Africa. “We are setting our sights on this continent because we believe strongly that it holds tremendous business potential for us.” The first phase of Rand Air’s Africa strategy is already under way. Karel explains that they are conducting a feasibility study in several African countries, looking at business activities, type and size of markets, trends, etc.

“Once we receive this report, a Business Development Manager will step in to do a deep dive into each country to determine where the biggest business potential lies,” elaborates Karel. “We may choose to focus on one country or even a group of countries; it really all depends on the business viability within the different territories.” The sustainable success of Rand Air’s African expansion strategy will

hinge to a large extent on having the right processes and procedures in place. Atlas Copco is in the process of replacing its ERP (Enterprise Resource Planning) software system with Spark with phase one focussing on Salesforce for Sales and Service Departments. The timing of this new SAP driven system could not have been better as it will serve to standardise best practices and improve administrative functions throughout the company. “By improving and streamlining our systems, we will be able to mirror the outstanding service ethic and best-in-class product delivery that we are renowned for in South Africa on the rest of the continent,” affirms Karel.

Looking at product rental solutions for Africa, Karel says the focus will be on their flagship oil-free compressors, where Rand Air leads the local market. In addition to large compressors, Karel says they are looking to offer the containerised QAC TwinPower generators.



Karel Verstraeten.

With two fully loaded QAC500kVa generators housed inside an easy to transport 20-foot container, TwinPower offers a reliable and flexible prime and critical standby power solution for the African continent. On the local front, Rand Air will scale up its focus on pumps and steam boilers to meet the growing market demand for these rental solutions. The launch of steam boilers by Rand Air’s Durban Depot to customers across the territory is imminent. “Rand Air enjoys well-established brand presence in Botswana, Namibia and Zimbabwe. However, in some countries the Atlas Copco brand is better known and here we will consider dual branding.”

Loadrite puts total cost of ownership in your hands

WHILE savvy operators know that total cost of equipment ownership is more important than just the purchase price, what most don't know is that they could actively reduce their total cost of ownership across earth-moving equipment and trucks by using Loadrite's monitoring and alert features to set benchmarks and measure productivity.

Total cost of ownership includes everything from the original purchase price to the daily running and maintenance costs, depreciation, finance and even 'hidden' costs like insurance and employee wages.

Measuring productivity

By tracking the amount of material moved per hour to measure productivity and set benchmarks, operators can see underperformance and make appropriate adjustments to ensure

all equipment is working to its optimum efficiency.

An on board weighing system like those offered by Loadtech can be used to calculate the weight of material in an excavator's or loader's bucket, relay this information to the operator and record the weight for later use.

"Being able to track the amount of material moved per hour can then be used internally as part of an overall business analysis to measure productivity and set benchmarks," said Glen Webster, Loadtech Sales Director.

"Once you know your benchmark productivity rates, it's also easy to identify equipment that is underperforming, which sets off a trigger for an investigation into the underlying causes. These causes can vary widely, from operator error to equipment failure."

Once productivity

benchmarks are set, fleet managers can customize the Loadrite system to capture a wide range of other data such as cycle times, which can then be used to identify process bottlenecks and inefficiencies. By resolving these issues, managers can improve productivity and reduce operating costs.

Reducing costs

"Being able to track and monitor fuel use, for example, is a major consideration in assessing the cost of ownership, particularly given the high price of fuel. By understanding the amount of fuel used to move each ton of material, you can see how productive each machine is and possibly find ways to reduce fuel usage," explained Webster.

"The Loadrite system can also measure the cycle times between each loading event, which can

show how efficiently the material is being moved. Shorter cycle times generally point to a more efficient and therefore more profitable operation.

"The system actively helps reduce fuel use. By using an accurate on board weighing system, operators can ensure trucks are filled correctly the first time, with no productivity lost due to under loading or overloading.

"By loading trucks correctly from the outset, unnecessary truck movement is reduced as there's no need to turn around for either a refill or a removal of material once the trucks get to the weighbridge," he said.

Setting maintenance parameters

"The system can record how much material has been moved since the last time the bucket edge was replaced for example. This data would allow different



brands to be benchmarked on how long they last, another critical factor in calculating the total cost of ownership," explained Webster.

"Tyre damage on trucks can also be reduced. Providing accurate and consistent weight measurement from the outset allows operators to set the correct target weight for the loader bucket to accurately load the truck. Because the truck's tyres are inflated correctly to

carry a certain weight, they can be damaged when carrying too much weight. So once the loader is set for optimal efficiency, you can potentially prolong the life of the tyres."

Glen Webster said that Loadrite's on-board weighing system can be configured to provide the data needed for any operation.

"Our expert installers work with project managers to identify the configuration that will give them the

information they need. We work with fleet managers individually to ensure the system meets the needs of their business. Our aim is to ensure the data collected provides real value to increase productivity and profitability over the lifecycle of the machine" he concluded.

For further information visit: www.loadtech.co.za. Or contact: 0126610830 / Sales@loadtech.co.za

L3180 SMARTSCALE FOR WHEEL LOADERS

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When the pressure is on and customers are waiting, you need to perform faster without compromising accuracy and precision. The new L3180 SmartScale for loaders adjusts for rough terrain, technique, and movement so new and skilled operators can load with greater accuracy, precision and speed.



What is a smart scale

A SmartScale is the next generation of onboard scales that uses weighing intelligence for more accurate, precise and faster loading.

It also connects machines and devices for the collection and syncing of loading data.

L3180 Offers

Weighing intelligence

- Connected quarry connectivity
- Including built-in WiFi and GPS
- Multi-axis Inertial Measurement Unit (IMU)
- Best-in-class interactivity and interface

Towards larger and hybrid mobile crushing solutions



The Lokotrack® LT300HP™ features the most popular Nordberg® HP300™ cone crushing unit, which provides optimized performance, efficiency and high capacity in crushing.

AMID an evolving market landscape, customers in southern Africa are increasingly turning to larger mobile crushers and hybrid solutions, observes Francois Marais, Sales and Marketing Director at Pilot Crushtec.

Over the past four years, says Marais, there has been a noticeable preference for bigger mobile crushers such as Metso Outotec's Lokotrack LT120 jaw crusher and the Lokotrack LT300HP cone crusher.

"At the centre of this trend is the changing face of the contracting sector. Instead of the traditional three to five year contracts, most of the projects coming to market are barely longer than six months," explains Marais.

Contractors, he says, are therefore turning to larger mobile crushers to enable them to execute these shorter contracts quite quickly so that they can then move on to the next project. This allows

them to increase the volume of work within a short space of time.

"In addition, larger crushing equipment allows contractors to minimise the number of machines that they have to mobilise on site. Having less kit to move between sites translates into reduced transport costs and quick setup on the next job," he explains.

With operating costs in mind, contractors in southern Africa are also increasingly seeing value in dual-powered crushing solutions. With their ability to have both electricity and diesel as power sources, hybrid solutions provide customers with the best of both worlds – significant fuel savings and a marked reduction in carbon (CO₂) emissions.

"Significant cost reduction is achieved when customers can connect their mobile crushers to the grid or to the mine's own renewable energy sources," says Marais. "Contractors running these machines

have seen a massive reduction in their cost per ton of material produced."

To provide context, a South African contractor running two Lokotrack E-models has seen a massive 30% fuel saving by switching to hybrid units. As a result, the company is converting its entire fleet to Metso Outotec dual-powered units.

With data being the new currency for crushing and screening businesses, telematics constitute an invaluable tool for gaining a competitive edge and remain one step ahead in tough economic times. To meet the growing demand for valuable operational data, Pilot Crushtec now offers the recently upgraded version of Metso Outotec Metrics, an innovative cloud-based tool for real-time monitoring of Lokotrack mobile crushers and screens.

"The new system moves from the traditional satellite feed to a GSM signal infrastructure, thus offering significantly better connectivity and optimisation benefits to customers' crushing processes. Other features include CO₂ tracking for sustainability benefits, 24/7 access to real-time data, a maintenance module, and critical dashboards for utilisation and geolocation," concludes Marais.

For more information visit: www.pilotcrushtec.com

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EV manufacturers forced into mining to procure minerals



Photo: Rebecca Cook/Reuters/Ritzau Scanpix.

GENERAL Motors and other electric car manufacturers have problems procuring batteries for their production and are therefore moving into the mining industry in order to get first in line, reports The Wall Street Journal.

Car manufacturers have been surprised by low supplies of battery minerals such as lithium and nickel and are

forced to ensure such deliveries from mines and mining companies, as a large portion of minerals needed for manufacturers' production are still hidden in the ground.

The increased demand for commodities enabling battery production has led to intense global competition where vehicle manufacturers attempt

to establish their own supply chains.

However, engaging directly in mining activities is not without risks and could pose a challenge to the financial stability of manufacturers; several sources tell The Wall Street Journal.

Article originally published in *EnergyWatch*, 16/05/2023

Krebs® pumps support mines' efficiency drive

GLOBAL minerals process specialist FLSmidth has allowed mines to achieve new levels of efficiency with the initially patented wear ring technology on its KREBS pumps, according to Stephan Kruger, FLSmidth's Vice President Pumps, Cyclones and Valves for Sub-Saharan Africa, Middle East and South Asia.

"It is not only the rising cost of electricity that drives mines' energy strategies, but also their commitment to a low carbon future," he says. "FLSmidth's KREBS pumps directly support these efforts by our mining customers, thanks in great part to our innovative wear ring technology."

He highlights that two key aspects that reduce efficiency in slurry pumps tend to be suction side recirculation and mechanical grinding between the casing and the impeller. The wear ring significantly reduces

both of these factors, leading to lower power draw and longer pump life.

"Through our case studies, we have seen power draw being cut by 5 to 10% for the same flow and head with the application of KREBS pumps," he points out. "Similarly, we have measured the impact on pump life, and have shown that the life of wet end parts can be lengthened by one and a half to two times."

According to Derek Lane, General Manager Operations, conventional products in the market solve only one of these factors through impeller and liner adjustment which may reduce recirculation but simultaneously exacerbates the grinding.

"This leaves the pump user having to compromise on efficiency, which we do not expect our customers to do," Lane explains.

He says adjusting the wear ring allows the

speed of the pump to be maintained as a constant, rather than users having to speed up the pump in response to the impact of grinding and wear. The wear ring in KREBS pumps can be easily adjusted so that it continues drawing the same power for the required pressure, holding energy consumption to a minimum.

The regular adjustment of KREBS pumps can also be done without shutting down the pump and disrupting operations. The wear ring can be simply adjusted by hand while the pump is running, and without the use of any special tools, allowing the gaps to be kept as small as possible to avoid recirculation inside the pump, while maintaining speed and pressure.

The life of KREBS pumps is further enhanced by the range of materials of construction available to suit the application, says Kruger. "The

choice of material is based on the application requirements and in particular minimising wear. There are a number of factors considered which determine the material of construction such as pump size, impeller size and tip speed as well as slurry hardness."

Materials used in the construction of slurry pumps are classified into two main types: metals and elastomers. For metal pumps high-chrome alloys, hypereutectic alloys, hypoeutectic alloys and stainless steels are commonly used. Elastomers options vary between natural rubber, polyurethane and synthetics such as neoprene.

He emphasises that the application of these materials makes their own contribution to the mining sector's sustainability agenda, by reducing the level of scrap produced due to equipment replacement.

Protecting lives and assets

WITH access to a portfolio of premium brand products, fire systems specialist, Integrated Fire Technology, (IFT) formerly known as Fogmaker South Africa, is able to offer holistic fire detection and prevention solutions for commercial and industrial sectors including mining, forestry, military and ports & harbours.

"We cannot emphasise enough the importance of having a fire system in place," states Shan-telle Alberts, Operations Manager – Fixed Systems, at Integrated Fire Technology. "Weighing the cost of installing a fire system against the potential costs of not doing so makes for a compelling argument to invest in a high quality, reliable fire system." Integrated Fire Technology's basket of fixed system fire detection solutions include early pre-warning systems that alert to potential fire risks or that a fire has broken out. Their fire protection product offerings include aerosol, foam and gas suppression systems, fire extinguishers, fire hydrants, hose reels, and sprinklers (including galvanised piping and couplers).



AF-X aerosol fire protection system

"We are extremely proud of having recently secured the full distribution rights to supply the globally tested and proven AF-X aerosol fire protection system to customers in Southern Africa," affirms Alberts. This highly effective aerosol-based system offers a dry fire protection solution, making it ideal for assets such as electrical cabinets and equipment that cannot tolerate water or foam contamination.

The AF-X system is particularly suited for protecting large areas such as warehouses and storage facilities on mines or at port sites. AF-X boasts a number of important differentiating factors that makes it stand head and shoulders above other aerosol products. Although aerosols are known for their corrosive

qualities, when tested against corrosion, results showed AF-X to be one of the best products on the market. Another advantage of AF-X aerosol canister is the ability to integrate into existing fire panels and detection solutions. AF-X system carries several internationally recognised certifications for aerosol extinguishing systems including KIWA BRL K23001, ISO 15779 and importantly Kiwa BRL-K21045 for protection of lithium-ion battery storage. According to Alberts, the mining sector presents the biggest opportunity for fire detection and gas suppression systems. "First and foremost, personnel safety remains the number one priority within this notoriously dangerous working environment. Mine sites normally have massive high value assets including diesel machines and

equipment that are critical to sustainable mining operations. Subsequently mines are under pressure to ensure that their fire systems are regularly updated."

With a proven approach of only using globally certified products and premium brands, Integrated Fire Technology is able to offer customers the most comprehensive, but fit-for-purpose solution for their particular application.

"Our in-depth knowledge of the market gives us the ability to source from a variety of best-in-class products in alignment with our brand identity," explains Alberts. She also points out that each system offers unique features that meet the requirements for a specific application.

"Based on our expertise and experience, we are perfectly positioned to advise customers on what fire system will be the best solution in terms of personnel safety and asset protection. We offer customers peace of mind, rest assured in the knowledge that we have delivered the most optimal solution to meet their individual and unique fire

detection and / or protection requirements." Integrated Fire Technology offers customer site visits to conduct

risk assessment and to determine best solutions. Depending on the project, Integrated Fire Technol-

ogy will also work closely with fire engineers and partner with like-minded professionals as required.




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Condition monitoring boosts mine safety - saves money

CONDITION monitoring plays a pivotal role in the mining industry, offering significant advantages in terms of operational efficiency, cost effectiveness, and safety. It involves the continuous assessment of equipment and machinery to detect potential faults, identify early warning signs, and prevent catastrophic failures.

WearCheck, a specialist condition monitoring company, has been boosting efficiency and productivity for businesses operating in the mining sector - and other industrial operations - for more than 45 years.

The company's managing director, Neil Robinson, shares some key reasons why condition monitoring is crucial in the mining industry.

'Firstly, condition monitoring helps to optimise equipment performance and prevent unplanned downtime. Mining operations rely heavily on complex machinery and equipment, such

as crushers, conveyors, and excavators, which are subjected to harsh operating conditions. By monitoring their condition regularly, operators can identify issues like wear and tear, component fatigue, or lubrication problems. This enables timely maintenance and repairs, avoiding unexpected breakdowns and maximising production uptime.

'Secondly, condition monitoring contributes to cost reduction. Unplanned equipment failures can result in costly repairs, lost productivity, and delayed project timelines. By implementing a proactive approach through condition monitoring, mining companies can reduce maintenance costs by replacing components or performing repairs during scheduled downtime. This helps to extend the lifespan of equipment, optimise spare parts

inventory, and minimise overall maintenance expenses.

'Moreover, condition monitoring enhances safety in mining operations. Equipment failures can pose severe risks to personnel working in close proximity to these machines. By continuously monitoring equipment condition, potential hazards can be identified early on, allowing for prompt corrective actions. This helps to prevent accidents, injuries, and even fatalities, safeguarding the well-being of workers and improving overall safety performance.

'Additionally, condition monitoring enables data-driven decision-making and predictive maintenance strategies. By collecting and analys-

ing equipment data, mining companies can gain valuable insights into equipment performance, degradation patterns, and optimal maintenance intervals. This facilitates the implementation of predictive maintenance programmes, where maintenance activities are scheduled based on actual equipment condition rather than fixed time intervals. As a

result, maintenance efforts become more efficient, minimising unnecessary maintenance tasks and reducing costs.

'Condition monitoring is of paramount importance in the mining industry as it optimises equipment performance, reduces downtime and maintenance costs, enhances safety, and promotes data-driven decision-making. By leveraging condition monitoring technologies and practices, mining companies can ensure a more productive, efficient, and sustainable operation,' says Robinson.

WearCheck's core business is the scientific analysis of used oil, fuel and other fluids, whereby samples are analysed in the laboratory for trace particles which indicate which component is suffering unusual wear patterns. This information is assessed by

a team of specialised diagnosticians, who make recommendations on the required remedial action for the component in question.

Additional predictive maintenance techniques offered by WearCheck - which are employed depending on the type of machinery being monitored - include asset reliability care (ARC) services, water analysis, transformer chemistry services and advanced field services (AFS) such as non-destructive testing, technical compliance and rope condition assessment. The company also offers lubrication enabled reliability (LER), providing clients with bespoke solutions to ensure that their lubrication systems are well managed, efficient and cost effective.

For more information visit: www.wearcheck.co.za, Email marketingt@wearcheck.co.za, or Tel: +27 (31) 700-5460.



WearCheck asset reliability care (ARC) technician, Peet Peacock, performs vibration analysis testing as part of the company's wide range of condition monitoring services.

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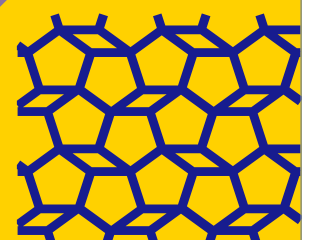
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Big potential for glass recycling in SA

CRUSHING equipment specialist Pilot Crushtec has several products that are ideal for the recycling of glass. While many of the company's overseas customers have recognised this and are using Pilot Crushtec machines very successfully to recycle glass, the local market for this application has not grown at the same

pace. One of the reasons for the slower progress in glass recycling locally is simply the fact that South Africa does not have a strong recycling culture, says Charl Marais, Sales Manager South Africa at Pilot Crushtec. "Compared to European countries and also Australasia, South Africa is lagging.

The problem is exacerbated by a lack of legislative support for recycling, particularly the recycling of glass." Marais notes that one potentially large market for recycled glass is road building. "Recycled glass can be used for road construction and this has been pioneered in the Nordic countries, the US and Australia,"

he says. "We would love to see this success emulated in South Africa but the problem is that our relevant road construction standards – the COTO Standard Specifications for Road and Bridge Works – do not allow for its use." He cites the case of a road upgrade in the state of Victoria in Australia.

"This was a 'green' project designed to use recycled materials to the fullest extent possible," he says. "The road contains recycled glass from 190 million glass bottles, which might otherwise have found their way into landfills. The road aggregate containing recycled glass was supplied by one of Pilot

Crushtec's Australian customers." Marais says that there are many other applications apart from road building where recycled glass can be used. "Recycled glass is a very versatile material," he comments. "For example, it can serve as a sand substitute in sand blasting and water

filtering applications and can also be used in decorative concrete and in the building of artificial sports tracks and golf bunkers. Safety is not compromised when crushed glass is used to replace sand, as the glass crushing process gives the crushed glass a 'sub-angular', which means there are no sharp edges."

Marais does point out though that recycled glass is not always competitive with sand on cost. "Sand is a plentiful natural resource and, to compound the problem, much of the sand supplied in South Africa is sourced illegally and priced accordingly."

Pilot Crushtec's entry-level machine for glass recycling is the ROMPI bottle breaker, which is hand-fed and can handle around 1 500 bottles an hour. The crushed glass is deposited into 30 litre plastic containers. The ROMPI is designed to reclaim valuable space during transportation or storage by reducing the volume of glass waste by up to 80 % and it also eliminates the safety risks associated with handling empty bottles during the crushing process.

"The ROMPI is selling well and we have about 25 of these units in the field," says Marais. "They're perfect for small community entrepreneurs. For example, we have one customer in Soweto who collects bottles, crushes them and then sells the crushed product to a big glass manufacturer."

For more demanding applications where high volumes are involved, Pilot Crushtec can offer the BR0605 horizontal shaft impactor and the VS100 and VS200 vertical shaft impactors, which can crush down to -1 mm. One typical large-scale application is to be found in Gqeberha where a Pilot Crushtec VSI is being used to crush rejected wind-screens down to a filter sand.

On the prospects for glass recycling in South Africa, Abelho says Pilot Crushtec is determined to grow the market. "We believe the benefits of glass recycling, especially from an environmental perspective, are huge," he says. "We have the ideal machines to make it an economic proposition and our task now is to get this message out into the marketplace."

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Cape Town's Urban Waste Management (UWM) Directorate on Waste Minimisation

Continued from P1

have a constitution and meet regularly. It should include a steering group facilitator/leader and persons with responsible portfolios.

The WMC must have an agreement approved by the Director in terms of this By-law to minimise waste in exchange for a lower tariff according to an integrated waste management plan.

How do we establish formal waste minimisation clubs in communities or business?

Any group of persons residing in a high density or a multi-property cluster development (residential or office) can start a waste mini-



misation club. The WMC must apply to the Director for special dispensation as

an enhanced service associated with waste. They must submit an integrated waste



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management plan for approval by the Director.

The integrated waste management plan must also assess the amount of waste that can be diverted through separating recyclables/ and or organic waste, then action their plan.

The WMC must provide documented evidence of the waste reduction, including evidence of third party contracts with recycling or composting companies.

If approved, the WMC must comply with the terms and conditions set out by the Director for the generation, minimisation, storage, collection and disposal of waste.

Will EPR affect the role of waste pickers in South Africa?

AS South Africa continues to roll out compulsory Extended Producer Responsibility schemes in accordance with refined EPR regulations, the critical role of waste pickers cannot be overlooked or discarded.

This is according to Patricia Schröder, spokesperson for producer responsibility organisation (PRO) Circular Energy. "Waste pickers are key actors in the waste management ecosystem whose contribution should be fully supported by EPR processes," she says.

EPR is a global initiative adopted by many countries, including South Africa, that places the onus on producers to manage the lifecycle of nominated products past their disposal stage.

The aim is to encourage the recycling of waste and reduce the burden on landfills.

The importance of waste pickers

The greatest contribution of waste pickers is that their activities divert recyclable products away from landfills where they would otherwise be lost. Instead, these materials are directed toward processing for economical reuse.

As a result, the work of the waste picker assists in mitigating climate change and improving the environment for



Image credit: New Frame.

their community.

Their work also relieves municipalities of the burden of sorting and separating recyclables from waste internally, reducing their operating costs in the process.

In addition, because waste reduction is a growing concern, the profession is a fertile channel for job creation.

"Waste pickers provide an essential service with hidden benefits we cannot afford to ignore," says Schröder.

Protecting pickers

According to the International Alliance of Waste Pickers, more than 22 million people around the world earn a living as informal waste workers. Yet, the organisation's review of global EPR policies and practices suggests that EPR more threatens than supports these participants.

"South Africa needs to ensure its waste pickers are protected through formal, transparent programmes that fully inte-

grate their services and provide fair compensation and incentives," says Schröder.

Waste Picker Integration Guideline for South Africa, published by the Department of Environment, Forestry and Fisheries (DEFF), offers 10 integration principles. These are:

- Recognition, respect and redress of unequal relationships between pickers and beneficiaries of their services
- Valuing waste pickers expertise and needs
- Meaningful engagement through legitimate platforms
- Using waste pickers' existing informal system as the basis for new formal recycling programmes and contracts
- Increased diversion of recyclables from landfills through cost effective means
- Evidence-based programmes and policies

- Providing an enabling environment at national, provincial and local levels
- Improved income and working conditions
- Fair compensation for services and savings
- Improved community and stakeholder perception of waste pickers as equal and active participants in the waste management process

Recent amendments to the Regulation Regarding Extended Producer Responsibility also entrench the importance of waste pickers by providing a formal definition for the term and including their participation in the definition of "collection".

An inclusive EPR The successful implementation of EPR in South Africa demands that all stakeholders should benefit from the process and share in its ambitions.

This means waste pickers must be recognised as integral members of the waste management community and that any risk to them associated with EPR should be addressed promptly.

"Their participation in the EPR scheme is a significant step towards building an inclusive, sustainable waste management system in South Africa," says Schröder.

The changing face of recycling... The role of circular economy thinking!

Kate Stubbs,
Marketing Director at
Interwaste

SUSTAINABILITY has become the watchword for South African corporates, as they grapple with both the public's demand for environmentally friendly products and the demands of Environmental, Social and Governance (ESG) reporting.

At the core of this change is the understanding that, to be fully immersed in real environmental change, we must work towards creating a circular economy and today, this is more real than ever before. In fact, what organisations are now learning is that much of the 90% of waste currently being disposed of to landfill, can be re-used as alternative resources, when managed effectively.

If we consider that only 10% of waste created is currently recycled in the country, then we need to find ways to uncover industry opportunities where products can be recycled but recycled into a circular framework to serve not only the purpose of 'getting rid' of the unwanted waste but, turning this waste into something useful – the true definition of Circular Economy thinking. For example, the End Producer Responsibility programme has seen Danone, who have through their Tubs2Classrooms project turned end of life yoghurt tubs, into eco bricks to be used for classroom builds.

The definition of the 'Circular Economy' model is where waste created in one industry is re-purposed for use in other areas of industry and the economy, and where disposal is the final option.

This type of thinking means that we can get much closer to the zero waste to landfill goal by 2030, using a 'whole system' through recycling, reuse, recovery, beneficiation technologies, and towards value-adding opportunities which have the potential to create numerous environmental, social, and economic opportunities for South Africa.

As a sector, waste has a fundamental role



to play in meeting the country's Sustainable Development Goals (SDGs), tackling not one, but at least 6 of the 15 goals in total. Goals 6 (Safe water), 7 (Clean energy), 13 (Climate action) and 11 (Sustainable cities) being the most prominent in this regard.

What other sectors can we tackle from a circular economy model that will help drive environmental compliance and improvement?

The impact of wastewater management on driving sustainable water supply.

With 7 of the 13 major water systems in South Africa predicted to be in deficit by 2040 and the demand for water expected to exceed available supply by 2030, we need to find solutions. Wastewater management can result in the redistribution of water into the environment for irrigation and dust suppression, as well as to replenish rivers and catchments in our water infrastructure networks. Treated to the required standards, nearly all effluent can be recycled, creating a strong solution for water sustainability and access,

Energy

The Just Energy Transition's (JET) provision focuses on achieving "Net Zero" carbon emissions by 2050, so exploring alternative sustainable options is

key - the global waste-to-energy market is expected to grow from \$28.4 billion 2017, to almost \$43 billion in 2024, waste presents a large economic opportunity to establish new industries and/or revenue streams and meet SDG Goals. Converting waste to energy production occurs through three key processes – thermal, biological and physical. For each process, there are a variety of technologies available to convert different types of waste to energy such as electricity, steam or gas and so, there are multiple layers to meeting South Africa's energy crisis – critical to government agendas currently.

Not all waste can be reused or recycled and where it can, sometimes cost can be prohibitive

The need for waste management strategies that look at the full value chain of waste and ensure that the growing waste generated should be critical. Very few people want to believe it, but engineered landfills and associated waste management practices remain cost effective and are still an attractive and compliant option for managing a wide variety of waste types. However, with landfill airspace diminishing across the country, we must consider the vital importance of creating more space to deal with the waste generated by South Africans.

Propak Cape to spotlight latest packaging and related industry trends

TAKING place at the Cape Town International Conference Centre (CTICC) from 24-26 October, Propak Cape highlight the latest trends across the packaging, food processing, plastics, print, labelling, and wine & olive oil production industries.

Visitors will see the latest in sustainability focussed packaging solutions whilst at Propak Cape; from packaging production to integrated packaging printing. Eco-friendly alternatives to traditional packaging, and lightweight on-the-go and ready-to-eat food packaging will be on view, as well as the expanded use of smart packaging with QR codes taking consumers from package to augmented reality through immersive experiences. New trends in secondary



packaging materials will also be on display using more environmentally friendly materials that are biodegradable, recyclable, or reusable. Packaging is an integral part of essential industries such as food and beverages, healthcare, cosmetics and personal care, and these industries will be represented at Propak Cape.

With FoodPro, Pro-Plas Expo, Print Expo, Pro-Label Expo, and the Wine & Olive Oil Production Expo incorporated within Propak Cape, visitors will also be able to see

cutting-edge innovation in food processing, state-of-the-art plastics processing machinery and recycling equipment, latest in digital print offerings for digital printed packaging and the newest equipment and materials in labelling.

“Propak Cape is a must-visit for those looking to source new products and services in packaging and its related industries and to engage with leading technical experts in these industries,” says Mark Anderson, Portfolio Director at Specialised Exhibitions, organisers of the show. “Over 200 industry suppliers will use this unique platform to showcase latest industry trends and cutting-edge technology,” he says, “and visitors will have the opportunity to see world-class machinery in action and discover solutions for improved efficiency and cost containment.”

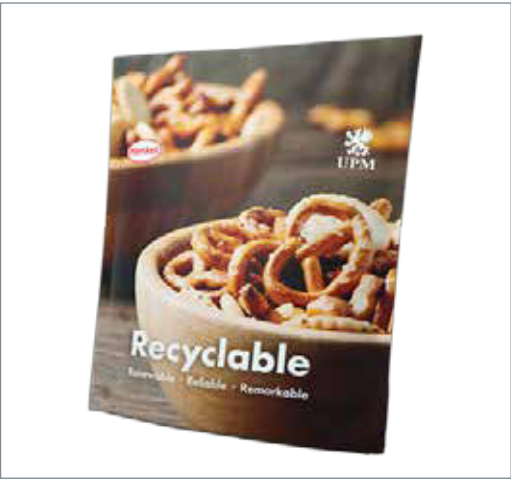
“For the first time, we are bringing the concept of Theme Days to Propak Cape,” explains Anderson. “The opening day will highlight new products and innovation, on day two, sustainability focussed packaging solutions and trends will be in the spotlight, and on the final day automation within the packaging and related industries will be in focus. Our daily free-to-attend seminar series will embrace these themes with industry experts sharing their knowledge and insights.”

Propak Cape is endorsed by the Institute of Packaging SA (IPSA), Packaging SA, Plastics SA, and Printing SA. IPSA will be running a conference alongside Propak Cape, and the Aerosol Manufacturers Association (AMA) will be hosting a breakfast and half-day workshop.

“More than 98% of available exhibition stands have already been sold. We encourage those who have not yet booked their space to do so. It will be an exciting show and beneficial to your business. If you are unable to exhibit, there are still some prime sponsorship opportunities available,” concludes Anderson.

For more information and online visitor registration, visit the Propak Cape website: www.propakcape.co.za

Specialty Papers present recyclable, grease-resistant paper solution



New levels of grease-resistance: Henkel and UPM Specialty Papers launch jointly developed solution.

AS brands seek more sustainable packaging options, new coating technologies for fibre-based packaging are unlocking the full potential of paper. At Interpack 2023, Henkel and UPM Specialty Papers presented two recyclable paper solutions created through a joint development between the two companies that push the performance of barrier papers to an unsurpassed level of grease resistance – offering a heat-sealable alternative to conventional plastic packaging. By combining Henkel coatings with UPM packaging papers, the innovative combined solutions provide fully recyclable alternatives for both food and non-food packaging applications.

At the Interpack stand, experts from Henkel and UPM presented a solution delivering heat sealability using Henkel’s Loctite Liofol HS 2809-22 RE with UPM AsendoTM 90 g/m2 paper and a solution that combined barrier coating Aquence EPIX BC 6134 and UPM AsendoTM Pro 90 g/m2 paper to deliver barrier properties against grease alongside heat sealability. The jointly developed innovations ensure that these vital characteristics for packaging food and non-food items can be provided using paper. Henkel’s paper coatings can be used on a variety of substrates and enable easy recycling and recovery of fibres to support a circular economy.

“At UPM Specialty Papers, we are working closely with innovative partners to create transformative solu-

tions that reimagine the future of sustainable packaging,” commented Mika Uusikartano, Senior Manager, Product Portfolio Management at UPM Specialty Papers. “Working alongside Henkel with a shared focus on creating sustainable alternatives, we have co-created a recyclable, heat-sealable packaging material that is compatible with existing packaging lines. By combining our respective expertise, we are jointly creating barrier paper structures and pushing their performance to an unsurpassed level of grease resistance, while providing converters with a tried and tested concept.”

“As the packaging industry and wider society work to take on urgent environmental challenges, it is essential that we collaborate across the value chain to rapidly deliver solutions. The solutions created with UPM – and successfully presented together at Interpack – embody this spirit of collaboration,” explains Christin Noack, Market Strategy Manager Europe at Henkel.

“The creation of packaging and processes to effectively combine paper with barrier and heat seal coatings, required close collaboration with our partners at UPM over a lengthy joint development process to identify and optimize the right fibre-based substrate and coatings combination. Together, we are enabling paper to achieve unmatched barrier performance while meeting the demand for more sustainable packaging.



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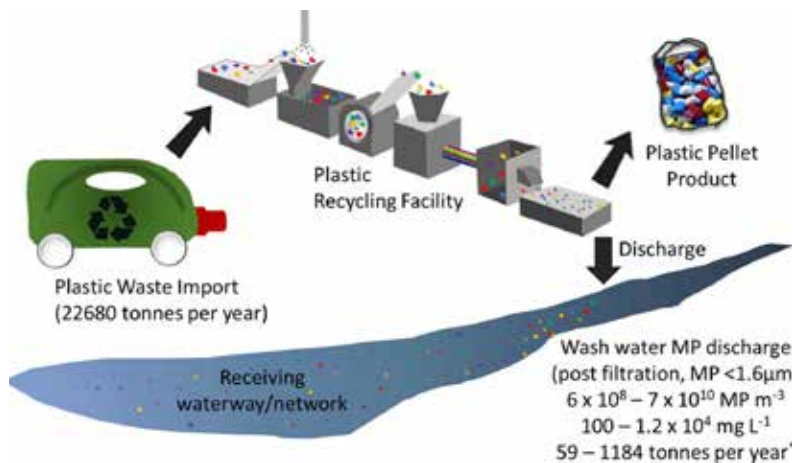
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Recycling plastics might be making things worse



Graphical abstract. Credit: *Journal of Hazardous Materials Advances* (2023). DOI: 10.1016/j.hazadv.2023.100309

By Bob Yirka,
Phys.org

A team of environmental engineers at the University of Strathclyde in Scotland and Dalhousie University Halifax in Canada has found that techniques for recycling plastics may inadvertently lead to increased environmental microplastics. In their study, reported in the *Journal of Hazardous Materials Advances*, the group tested water used to clean plastic at a recycling plant.

By most accounts, plastic recycling efforts have been a resounding failure. Prior research has shown that only 9% of plastic worldwide is recycled—in the U.S., it is only 5%. This is despite millions of people around the world dutifully separating out their plastic bottles; most of them wind up in landfills anyway.

And now, it appears that the recycling process itself might be making things worse. In this new effort, the research team received permission to test a plastic recycling plant to see if it was emitting plastic pollution.

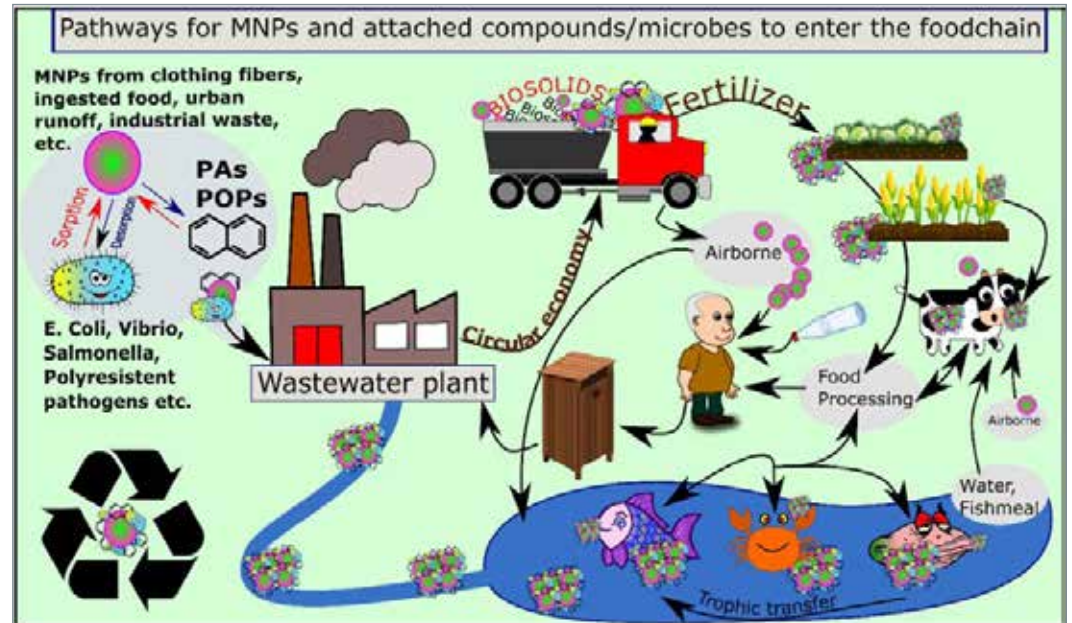
The problem, the researchers note, is that for plastic to be recycled, it must first be cleaned. This is done by washing it in water several times. The rest of the process involves shredding and melting to create pellets. Prior research has suggested washing may result in the release of microplastics into the water. In this new effort, the group found that the plastic was being washed four times. Each water source was tested to find out how much plastic (in the form of micron-sized particles) remained in the water.

The research team found microplastics in

all four sources. They also noted that most of the water is routed to sewage systems or directly into the environment at most recycling plants. After adding up all the particles they observed, the team estimated that the facility could be emitting approximately 1,435 tons of microplastics into the environment each year.

But there was more to the story. The researchers revealed that the facility under study had installed a filtration system, which reduced the number of particles by approximately 50%. However, there was a caveat—the researchers only tested for plastics down to 1.6 microns. Plastic particles can be much smaller than that. Prior research has shown that some can be small enough to make their way into individual cells in an animal's body.

Plastic pervasive in food supply, says new study



An overview of MNP cycling through the environment showing the main pathways potentially affecting global food safety and food security. The shown pathways are not intended to be exhaustive but rather a synthesis of how MNPs flow into and through the food chain. Credit: *TrAC Trends in Analytical Chemistry* (2023). DOI: 10.1016/j.trac.2023.116993

By CSIRO

MICRO and nanoplastics are pervasive in our food supply and may be affecting food safety and security on a global scale, a new study led by CSIRO, Australia's national science agency, has found.

The study is one of the first to analyse the academic literature on microplastics from a food safety and food security risk viewpoint, building on past studies which primarily tracked plastics in fish.

It shows that plastics and their additives are present at a range of concentrations not only in fish but in many products including meat, chicken, rice, water, take-away food and drink, and even fresh produce.

CSIRO analytical chemist, food safety specialist and lead author of the paper, Dr. Jordi Nelis, said these plastics enter the human food chain through numerous pathways, such as ingestion as shown in the fish studies,

but one of the main ways is through food processing and packaging. The research is published in the journal *TrAC Trends in Analytical Chemistry*.

"Fresh food for example can be plastic free when it's picked or caught but contain plastics by the time it's been handled, packaged and makes its way to us," Dr. Nelis said.

"Machinery, cutting boards, plastic wrapping can all deposit micro and nanoplastics onto our food that we then consume. This study highlights the need to understand what plastic could end up in food to manage food safety and security," he said.

Another important pathway for these contaminants to enter our agriculture system is through biosolids sourced from wastewater treatment.

Biosolids are a rich fertilizer for agricultural land, but they can contain plastic particles from many sources, such as from the washing of synthetic clothing.

These particles

could build up in the soil and change the soil structure over time, which may affect crop production, food security and ecosystem resilience. For example, plastic materials can "trick" the good bacteria in the soil into thinking they are the roots of plants, meaning the plants end up with less of the nutrients they need.

The study also discussed how additives in plastics that help make plastic work in our modern world can leach into our environment, potentially contaminating our food supply.

Additives that make plastic flexible or resistant to UV radiation, for example, can include flame retardants, heavy metals, phthalates, hardeners or other chemical compounds.

There are currently no definitive studies that demonstrate micro and nanoplastics in the environment cause harm to humans, however more research is needed to fully understand health effects.

More research is also needed to bet-

ter understand the effects of plastics and their additives on food safety and security as well as to develop better analytical techniques to monitor, assess and establish safe levels in food, drinking water and agroecosystems.

"The key missing information is determining safe levels of microplastics. We currently don't know exactly what the microplastic flux through the food system is or which levels can be considered safe," Dr. Nelis said.

He said there are things that consumers can do to help reduce micro and nanoplastics from cycling through the environment.

"On average Australians discard 100 kg of plastic waste each year, so use fewer plastics especially in the kitchen and wash your clothes a little less often, on shorter cycles," Dr. Nelis said.

CSIRO is on a mission to end plastic waste, with a goal of an 80% reduction in plastic waste entering the Australian environment by 2030.

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Mattei is the choice in North America

GRANITEFUEL Engineering, a leading company in the engineering of biogas production and conditioning systems, relies on Mattei Gas compressor technology.

GraniteFuel Engineering is a Canadian company founded in the late 1980s. It specialises in the development, design and integration of biogas upgrading plants for various applications such as reciprocating engines, turbines, CNG and gas utility systems.

GraniteFuel Engineering chose Mattei as a partner for its production cycle operations that require the use of quality compressed gas.

Since the 1990s, the Canadian company has become part of the DCL Technology Group, a North America-based multinational that is a global leader in the design, manufacture

and implementation of advanced emission control systems for stationary and mobile internal combustion engines and siloxane removal solutions, internationally recognised as an industry benchmark for quality and reliability.

The story of this strong

multinational began in 1986 when it was established under the name Diesel Controls Limited. Just ten years later, in 1996, the company changed its name to DCL International to reflect its growth and entry into the stationary engine and alternative fuel (liquefied petroleum gas - LPG) markets. The Canadian company continued its expansion and in 2011 came to Europe, maintaining family ownership and management, and created DCL Europe GmbH, with a headquarters in Frankfurt, Germany. In 2014, it also strengthened its position in the United States, where it first set up a production plant and sales & logistics offices in Houston, Texas, allowing it to carry on expanding throughout North America and Europe.

DCL International pays special attention to environmental sustainability: its mission is 'To preserve and improve the environment in which we live'. A real and constant commitment that has enabled the company to obtain not only ISO 9001:2015 certification for its research, design

and production of emission control technologies, but also American Society of Mechanical Engineers (ASME) certifications for the construction of heat exchangers and other high-pressure vessels.

GraniteFuel Engineering is part of this international group, whilst also maintaining a family management structure. It has a unique approach that ensures maximum flexibility in plant design and integration, as well as maximum efficiency at every stage, from design to final implementation and commissioning.

The core business of GraniteFuel Engineering is the supply of turnkey continuous biogas recovery and preparation plants, designed to provide clean renewable natural gas that can be used as fuel or fed into the distribution network.

The plants include a system that draws in raw biogas which contains contaminants that must be removed. The raw gas is cooled by passing through a series of heat exchangers and filters, whereby the contaminants change state and

are transformed into liquids and solids that can then be filtered and extracted. The biogas at this point is contaminant-free and ready for use.

Mattei Gas Compressors that automatically start up in sequence to match gas production to system demand

The Mattei Gas compressors were selected after a careful examination of products on the market and were chosen for their simple, robust, compact and integrated design which made them easier to install than competitor compression technologies and allowed them to be placed outdoors despite adverse local weather conditions. Thanks to the seamless integration with plant operations, the system selectively activates Mattei's compressors to minimise power consumption and maximise plant reliability and efficiency.

"Many biogas upgrading manufacturers rely on the end customer to source the gas compressors independent of the membrane system, and it is the end user who has



to complete the system. Our approach benefits the customer through a complete turnkey installation with single source responsibility" explains Jay Daran, Marketing Manager at GraniteFuel Engineering. "What fascinates me about Mattei's gas compressors are their simplicity and compactness: the entire system is packed into one integrated device".

Mattei gas compressors also have other advantages which led the company to choose them: "they offer flexibility, as they can be started up sequentially to maximise energy efficiency

while providing the necessary excess to ensure that the system remains operational, even if one machine should be unavailable or temporarily reduced in its operational capacity", comments Jay Daran.

Reliability is an essential feature of Mattei gas compressors, especially because of where they are located within the plant; feeding raw biogas into the plant pipeline and dispatching clean biogas into the network pipeline or to the engine that is to be powered.

"Furthermore, thanks to both the materials used and their design,

the compressors can be placed outdoors and exposed to the elements without the need for additional dedicated protection", Daran continues. Another factor also played a role in GraniteFuel Engineering's final choice: "Mattei also beat the competition on the delivery schedule. With all the difficulties we are facing in supply chains, having a reliable partner with a product that fully meets our standards is an important competitive advantage."

For more information contact cindy@rotorvane.co.za

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AIF showcases \$1.475 bn in green and renewable energy deals

Africa Investment Forum's current pipeline, comprises 90 deals valued at \$62.9 billion

THE Africa Investment Forum (AIF) presented four renewable energy and sustainability projects worth nearly \$1.5 billion to investors on the sidelines of the African Development Bank Group's (www.AfDB.org) 2023 Annual Meetings.

The curated projects, which are drawn from all of Africa's regions, are sourced from the Africa Investment Forum's pipeline. They reflect gathering urgency in Africa, the world's most vulnerable region to climate change, to accelerate climate action, including closing financing gaps by securing an ever-increasing share of global capital for the continent.

The African Development Bank's 2023 Annual Meetings are being held under the theme, Mobilizing Pri-

ivate Sector Financing for Climate and Green Growth in Africa.

The investment roundtable, held in Sharm El Sheikh, attracted a range of private investors, including venture capital and private equity firms.

From hydropower to plastic recycling green projects showcase ample opportunities on the continent.

The transactions included a hybrid hydrogen feedstock/ammonia project in North Africa that will source 400 MW of renewable energy to produce—without CO₂ emissions—183 tons of hydrogen feedstock daily to generate 1 000 tons a day of green ammonia via electrolysis. Additional investment of \$27 million is needed to move the project towards bankability.

The second transac-

tion, in West Africa, is a 27 MW hydropower project that has successfully undergone feasibility assessments. It has also attracted funding support from a number of international entities and multilateral development agencies. Among projected benefits, the deal will service 700 000 households, generate 600 direct and indirect jobs over the life of the project, and reduce CO₂ emissions by 81 000 tons each year. The project represents an increase of 10% in the country's total electricity generation capacity.

The investment roundtable also featured an opportunity to invest in a \$73 million plastic recycling and sustainability company's expansion drive into seven African countries across West, Central and Southern Africa. The project has

attracted the interest of several funders of project preparation and technical assistance to conduct feasibility studies in the target countries. It promises important benefits: creation of 16 000 jobs as well as opportunities for 20 000 waste pickers in targeted countries. It will also divert 214 000 metric tons of plastic waste (PET, PP, PE) from landfill dumps and reduce carbon emissions by 149 000 tons. Currently only 10% of Africa's plastics are recycled. The project resonated positively with growth capital investors that attended the roundtable.

The transaction incorporates important technological features, including cutting-edge processing lines and app-based collection and payment options.

The fourth transac-



tion is an opportunity to invest in a \$440 million Southern Africa hydropower independent power producer that will generate 544 000 MWh/year of energy. It will also include water distribution and flood prevention elements. Other benefits include 3 000 construction jobs through project

completion. The transaction sponsors are seeking \$12.5 million to finalize the project's development phase.

The event also included an update on the Africa Investment Forum's current pipeline, comprising 90 deals valued at \$62.9 billion and classified as either in the capital

raise phase or the bankability phase.

The Africa Investment Forum's flagship Market Days event, to be held in November 2023, will bring together international deal sponsors, investors and government leaders to showcase transactions that are ready to progress toward closure.

Namibia forges ahead with green hydrogen agenda

Namibia has taken another step forwards to realizing its goals of becoming a global hydrogen hub with the signing of a deal with project developer HYPHEN for the next phase of the \$10 billion project.

NAMIBIA has reached another milestone in the development of its green hydrogen economy, inking a deal with green hydrogen development company HYPHEN Hydrogen Energy for the next phase of a \$10 billion project set to be located in the Namib Desert's Tsau//Khaeb National Park. As per the terms of the agreement, green hydrogen

Following a series of successful editions held in London, Oslo, Dubai and Frankfurt – the German edition of which was centred on exploring hydrogen-related investment opportunities in Africa – the Paris forum will expand on previous discussions regarding Africa-Europe collaboration, laying the foundation for a strong slate of new deals to be

critical opportunities for the continent to address energy access concerns through the development of wide-spread solar and wind energy systems, as well as industrialization through the utilization of green hydrogen fuels. Green hydrogen projects have been cropping up across the continent, with markets such as South Africa, Mauritania and Egypt eager to capitalize on the benefits the resource provides. However, what sets the Namibian agenda apart is the country's focus on global collaboration.

Working closely with its German partners, the Government is driving its green hydrogen project forward, and energy access and industrialization opportunities are soon to follow.

Planned to be constructed in two phases, the HYPHEN-led green hydrogen plant will eventually produce up to two million tons of green ammonia per annum with hydrogen energy distributed for both regional, and now with the offtake agreement, global use. Production is targeted for 2030.

“The Tsau//Khaeb green hydrogen project serves as not only a significant initiative in its own right, but as a demonstration of the potential for large-scale green hydrogen projects in Africa.”

will be exported to Europe following the completion of the project, thereby consolidating the country's position as a global hydrogen hub.

The milestone comes just week ahead of the African Energy Chamber's (AEC) Invest in African Energy Forum in Paris, a pivotal gathering that brings together movers and shakers from across the African and European energy sectors.

signed aimed at maximizing Africa's vast energy resources.

For its part, the Tsau//Khaeb green hydrogen project serves as not only a significant initiative in its own right, but as a demonstration of the potential for large-scale green hydrogen projects in Africa. Long-considered the final frontier for energy, Africa's significant renewable energy resources offer

Precast-concrete technology for reservoir upgrade

VHEMBE District Municipality has harnessed the many benefits of precast concrete to deliver critical infrastructure faster than would be possible using conventional cast-in-place methods. The absolute control provided by prefabricated concrete also facilitated a higher quality final build.

The technology was successfully deployed on components of the upgrade of the Vondo Regional Water Scheme, which will provide a reliable and secure source of drinking water to about 500 000 people who reside in Phiphidi.

Located along the road to Sibasa to Nzhlele, the scheme consists of the Vondo Dam and water-treatment works (WTW). From here, water is pumped to two command reservoirs that supply specific areas within the scheme. Water is also pumped and gravitated to the WTW from two other reservoirs where it is distributed to various areas.

The construction of the two reservoirs was undertaken in phases. One of the reservoirs had to be commissioned before an existing water-retaining structure could be demolished to make space for the construction of a new reservoir on the restricted site.

This is where the municipality is success-



fully exploiting the benefits of prefabricated concrete technology.

The reservoirs were designed by Infraburo Civil and Structural Consulting Engineers and Corestruc, a precast-concrete specialist. Corestruc was also tasked with erecting the system while working alongside principal contractor, Morawa Building and Civils. The various precast-concrete elements that make up the system were manufactured by Coreslab, one of Corestruc's approved manufacturers.

The first reservoir was erected in record time. It has passed all relevant tests and has now been operating successfully for just under two years. The stellar performance of the reservoir to date further motivated the use of the technology to also build the second water-retaining structure.

Using this precast-concrete system, a 10 ML reservoir can be

completed in only four months, therefore, providing significant savings in construction costs for the client.

Corestruc's system enables the various trades to work simultaneously. The wall and roof are manufactured while earthworks and site terracing, as well as the construction of the roof column bases are under way. This work is undertaken by the principal contractor.

Notably, the system facilitates greater participation of emerging contractors in these projects. Bear in mind their highly specialised nature with only a few contractors having the skills, experience and capacity to build cast-in-place reservoirs.

Corestruc uses a “slide-and-pinned” system. Post-tensioning is undertaken when the wall is not yet fixed to the ring footing and it is, therefore, allowed to slide on a steel bearing or locating plates. The coated post-tensioned cables are not bonded

to the grout with the reservoir designed to maintain a residual compression of a minimum of 1MPa in all directions. Horizontal reactions to the wall base are transferred to the ring foundation through the second phase cast in-situ kicker. This is where the ring tension in the base is also activated to resist the reaction. Additional post-tensioning of the lower part of the wall reduces the amount of rebar required in the cast in-situ ring footing.

As part of the final aspects of the build, the concrete floor slab is completed and the hollow-core slabs that make up the outer portion of the roof structure connected to the precast-concrete beams. A grout topping is then placed over the hollow-core slabs to form a single monolithic structure and a precast concrete coping installed around the perimeter of the roof as an aesthetic finish.

Corrosion-resistant flameproof junction box is a world first



Pratley Flameproof Ex d Envirobox with Ex d Flameproof Enviro Compression Cable Glands.

PRATLEY, the renowned manufacturer of innovative electrical termination products, has launched a new product, the Flameproof Ex d Envirobox® which it claims to be the world's first polymeric, corrosion-resistant, direct-entry, flameproof junction box.

Its recent launch signals a major milestone in the electrical industry and has been confirmed by Pratley Electrical Research & Development Manager Sven Breedts as: "A new product unlike any other in the world and one of Pratley's most innovative electrical inventions."

Flameproof equipment is designed to prevent internal ignition within a flammable atmosphere from transmitting outside the protective enclosure. However, all traditional direct-entry flameproof junction boxes made from steel, cast iron or aluminium materials can be prone to corrosion over time and when used in very

harsh environments. Special attention needs to be given not just to the overall climatic conditions of the area where the enclosures are installed, but also to the material and design of the equipment.

Pratley's new Flameproof Ex d Envirobox® junction box, made from a specially formulated, robust engineering polymer, is designed to withstand severe environmental conditions. This makes it ideal for use in areas with a high risk of corrosion, such as offshore oil platforms, underground mines, and petrochemical plants.

"The need for a lightweight and corrosion-resistant flameproof junction box is evident with the current, ever-changing mining environment," says Sven. "Over a decade's worth of research and development went into the design and development of this junction box."

The material has exceptional mechanical properties such

as strength, stiffness, creep, dimensional stability and more. This ensures that the Flameproof Ex d Envirobox® can withstand 2x 20-joule impact tests in -40°C environment and has been third-party tested to a 4 000-kilopascal internal pressure. Additionally, it is IP66/68 certified for continuous underwater depths of up to 300m, making it water, dust, and gas-tight.

The lid and base have an accurately machined flame path. "The flame path surface of traditional Ex d junction boxes is coated or greased to prevent corrosion. However, this is not a long-term solution as the coating can wear off and greases would need to be reapplied periodically," continues Sven.

The engineering polymer of the Envirobox® ensures that the flame path is completely corrosion resistant.

The machined surface flame path renders the junction box safe, easy to use and maintenance-friendly in surface and underground mining applications. The lid is fastened down with eight stainless steel A2-70 Allen head screws, contributing to the corrosion resistance of the junction box, and it has Pratley's signature red Ex identification band for quick Ex equipment identification.

The junction box is supplied standard with

4 x M25 entries but can be supplied with M20 entries or smaller entries on request. The box can accommodate Pratley Ex d flameproof cable glands and accessories. Each box is supplied as a standard two-way box with 2 x flameproof blanking plugs.

It can safely accommodate terminals, connectors, relays, and any other non-energy storing devices. The internal bosses are drilled and tapped to provide an earthing point for terminal mounting rails or earth lugs. These are electrically connected to the box entries providing complete earthing continuity.

Boxes can be fitted with an N35 terminal rail, a Pratley patented Cranked rail, an inverted Cranked rail, or Piggyback rails. Pratley Kwikklok® terminals and pre-cut lengths of cable with glands can also be factory fitted to customer requirements.

It has an optional external earthing point and is supplied with 4 x M6 Nuts and washers as well as a 1 x M6 Spring washer. The box has threaded mounting M5 holes and can accommodate an indexable mounting plate that can be purchased separately if required.

The Flameproof Ex d Envirobox® is fully certified to SANS, EN and IECEx Standards for use on surface and underground mining applications (Ex db I/ IIB+H2 T6..T5 Mb Gb, Ex tb IIIC T85.. T100 Db) in Zone 1, 2, 21 & 22 and an ambient temperature range of -40°C to +55°C.

Pratley's Flameproof Ex d Envirobox® is a revolutionary junction box that sets a new standard in the electrical industry.

"I am confident that what Pratley has produced is a product that not only complies with our policy statement of producing products that outperform all others on the world market but exceeds that policy. Our goal was to produce the only direct entry junction box that is corrosion resistant, and the launch of the Pratley Flameproof Ex d Envirobox® certainly achieves that goal. It is a world first, and I see it marking the future of electrical termination products for explosive atmospheres," concludes Sven.

Using corrosion resistant alloys in upstream production

Five key considerations when selecting a CRA

By Bill Hedges, past President of the Institute of Corrosion, UK

WHEN should you use corrosion-resistant alloys in upstream production?

Let's start by describing what a corrosion-resistant alloy is before considering the steps to take when selecting metal selection in upstream installations.

What is a corrosion-resistant alloy?

The term 'corrosion-resistant alloy' (CRA) refers to specific metals or alloys that resist certain corrosion mechanisms. This makes them an excellent choice to combat material degradation caused by corrosion.

"CRAs are only one of the weapons in the armoury of Materials and Corrosion (M&C) professionals."

However, it's important to understand that not all CRAs are equal. For example, 316L stainless steel is commonly used in upstream operations for its resistance to carbon dioxide (CO₂) corrosion, but it is vulnerable to corrosion in oxygenated seawater.

Therefore, when selecting a CRA it is crucial to first define the corrosion mechanism or mechanisms that the CRA needs to combat – on both internal and external surfaces.

Corrosion-resistant does not mean corrosion will not occur

CRAs are only one of the weapons in the armoury of Materials and Corrosion (M&C) professionals. If only CRAs were the answer to corrosion, the job would be easy! Unfortunately, CRAs are not immune to corrosion in every environment. Indeed, it's critical to understand this – and a key role of M&C engineers is to educate non-corrosion specialists on the limits of specific CRAs in specific environments.

Isn't a CRA simply stainless steel?

It's true that many CRAs are stainless

steels and, for a long time, the term stainless steel was used generically to describe any metal that was corrosion resistant. But not all CRAs are stainless steel.

The term CRA emerged when industry started to use alloys without iron as their majority element in the battle against corrosion – such as nickel and titanium-based alloys.

Selecting an appropriate CRA: a step-by-step guide

When we select a CRA, it's essential that we don't replace one corrosion mechanism with another. If we do this, we could actually increase the risk associated with corrosion.

For example, many stainless steels are resistant to CO₂ corrosion but vulnerable to cracking mechanisms like Chloride Stress Corrosion Cracking (SCC) and Sulphide Stress Cracking (SSC). This can happen suddenly and without warning with catastrophic consequences. In many situations it will be preferable to have a corrosion mechanism where corrosion monitoring can detect corrosion problems before significant metal loss has occurred.

Five key considerations that we must make when selecting a CRA are:

1. Cost
2. Welding
3. Galvanic corrosion
4. Construction and commissioning
5. Availability

CRAs are more expensive than carbon steels, and they require extra care when welding, adding to the cost of construction. Moreover, CRAs can function as a cathode, promoting corrosion of other metals, and they may not be readily available due to manufacturing challenges and mill constraints.

With specific regard to cost, we must consider 'whole-life costing'. This includes the cost of procurement, construction, operation, and decommissioning costs. Typically, CRAs become more attractive as the required lifetime of a project increases.

We need to consider the expertise needed for welding, and if this is available near to the project site.

And in the construc-

tion phase, we must ensure that the CRA does not come into contact with a fluid that is corrosive to it – if this happens, then the CRA can corrode or crack before it enters operational service.

So, when should you use corrosion-resistant alloys in upstream production?

Because of the factors mentioned above, before we consider using CRAs we should assess using carbon steel. Indeed, this should always be the base case for construction. We can then compare CRAs to this, and evaluate under three main themes:

- Risk
- Operability
- Cost

The decision to select a CRA in upstream production is often complex. There are so many factors involved. This is why it's crucial to use M&C professionals to assess the risks and costs of both carbon steel and CRA options for a project. You may also require consultation with corrosion professionals with specialised knowledge of specific materials and types of corrosion to properly evaluate options.

Sometimes, the decision to use a CRA can be simple. For example:

- When corrosion rates of carbon steel are unacceptably high
- When the construction and operational costs for managing a carbon steel facility exceed the cost of using CRA for the project
- When the risk of maintaining an active mitigation system for carbon steel equipment is unacceptable
- When a combination of very high strength and corrosion resistance are essential

However, it is rarely this straightforward. Selecting CRAs for upstream equipment requires careful evaluation of numerous factors. While CRAs can be an excellent material choice, they are not immune to every corrosion environment, and it's important to recognise their limitations.

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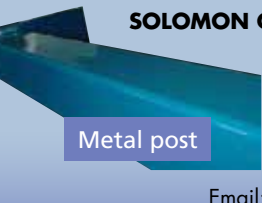
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Hydrogen for the future of energy, industry, and transportation

As fossil fuels become increasingly scarce, hydrogen is the most abundant element in the universe and is already considered the fuel of the future. This is due to the fact that no harmful CO₂ emissions are produced during combustion, only water vapor remains.

While this sounds like a genuine climate saver, the value chain of green, CO₂-neutral hydrogen is full of technical challenges. Starting with power generation from renewable energies for electrolysis, through to transportation and use in industry and transport.

With over 70 years of experience in sensor technology and explosion protection, Pepperl+Fuchs stand by the hydrogen industry and offer a broad portfolio along the entire value chain. It is in our DNA to address new requirements around hydrogen.

The prerequisite for green hydrogen is its production using electricity from renewable sources. To optimize the energy yield of solar and wind power plants and therefore ensure maximum efficiency, Pepperl+Fuchs offers a wide range of innovative sensor and signal transmission technologies.

Safety on All Transport Routes

Since hydrogen is not usually produced where it is used, the explosive gas often has to travel long distances. Whether over land or on the high seas, safety on all transport routes is a top priority.

Use of Hydrogen in Industry

Particularly in energy-intensive industries such as the chemical, steel or cement industries, hydrogen will take on an important role in the future on the path to climate neutrality. Pepperl+Fuchs offers

a range of solutions for all sectors of industry, for example for monitoring valves on transport pipelines in a plant, as well as interface technology for burner control and identification solutions for driverless transport

systems powered by hydrogen.

Safe Refueling at Hydrogen Gas Stations

From delivery to storage in low-pressure storage tanks to dispensing at the pump,

there are a number of factors to consider at hydrogen refueling stations due to the properties of hydrogen.

With various products and solutions for hazardous areas, Pepperl+Fuchs create optimal conditions for safe pro-

cesses and a convenient refueling process at the dispensing point at the same time.

For more information visit: <https://www.pepperl-fuchs.com/southafrica/en/index.htm?countryseiteid=-1>



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Your automation, our passion.

PEPPERL+FUCHS

Zest WEG supplies E-house package for Sasol gas project

A large complete substation E-house locally manufactured by Zest WEG will help power Sasol's Upstream PSA project currently under construction in the Inhambane Province of southern Mozambique.

According to Lukas Barnard, Zest WEG's Business Development Specialist for the oil and gas sector in sub-Saharan Africa, the contract also includes locally manufactured transformers and diesel generator set – and is being procured by EPCM contractor, Wood. The PSA development is an integrated oil, liquefied petroleum gas (LPG) and gas project. It will supply a 450 megawatt gas-fired power plant and an LPG facility in Mozambique, as well

as export gas to Sasol's operations in South Africa.

"This is an exciting project for the southern African region, and we are proud to be part of a development with such an important energy impact," says Barnard. "We are also pleased to be partnering with the well-respected engineering firm Proconics."

Zest WEG, part of the global WEG group of companies, will supply a complete substation E-house package measuring 45 m by 22 m in size and containing medium voltage (MV) and low voltage (LV) switchgear, a battery room, a local equipment room and an HVAC system. It will be manufactured and pre-assembled in Zest



MV modular E-house housing multiple MV variable speed drives.

WEG's advanced local manufacturing facility in Heidelberg, Gauteng.

"This large and complex structure will include staircases and platforms, as it will be elevated 2,1 m above

ground for ease of cable entry," he says. "The design will accommodate the uneven ground on site by accommodating the precise metres-above-sea-level elevations of each corner."

After factory acceptance tests (FAT) are conducted, the structure will be disassembled for delivery and reconstructed on site. Barnard highlights the quality and cost benefit

of the E-house option, which can be built and tested under factory conditions. This enhances safety and avoids the costs, risks and logistics of having multiple teams on site for extended periods to build an equivalent brick-and-mortar structure.

Given the humid and corrosive coastal atmosphere, the E-house will be constructed using 3CR12 stainless steel. The manufacturing and testing of the E-house will be conducted to Sasol's stringent standards and requirements, he notes.

The supply package also includes one 1,250 kVA Zest WEG diesel generator set for back-up power, and two 2,5 MVA 6.6/0.42kV distribution transformers.

"Once again, these

aspects of the contract showcase our local manufacturing capabilities," explains Barnard. "While the gensets will be manufactured in our dedicated facility in Cape Town, the transformers will be built in Zest WEG's Wadeville facility."

Zest WEG will also be supplying a heating, ventilation and cooling (HVAC) system to control the temperatures inside the E-house and ensure optimal functioning of all components. He highlights that the company's experience in E-house design and construction has given it considerable competitive advantage as demand for these solutions has grown.

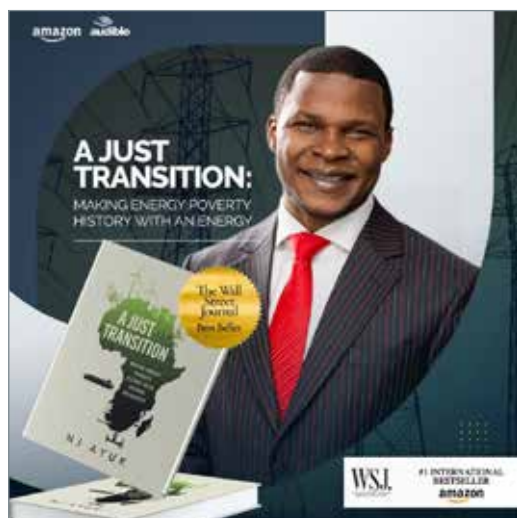
For more information visit: www.zestweg.com

Energy book hits #1 on Wall Street Journal Bestseller List

AEC Executive Chairman NJ Ayuk's recent publication, 'A Just Transition: Making Energy Poverty History with an Energy Mix,' has reached a new milestone, taking the #1 spot on the Wall Street Journal's bestseller list

FOLLOWING an exciting debut which saw the publication hit the #1 bestseller position on Amazon's US store on the first day of release, renowned energy lawyer and author NJ Ayuk's recent market-focused publication, 'A Just Transition: Making Energy Poverty History with an Energy Mix,' has reached a new milestone, securing the prestigious #1 spot on the Wall Street Journal's bestseller list. Ayuk's book has captivated readers worldwide, sparking crucial conversations about energy poverty and the urgent need for a just and sustainable transition.

The publication represents the most recent of Ayuk's books to emerge as bestsellers. Previous books such as the 2020 released 'Billions at Play,' were met with profound success. Similarly, A Just Transition shattered



records merely days after publishing, with the most recent Wall Street Journal milestone underscoring the significance of addressing energy poverty and implementing a just energy transition while solidifying Ayuk's reputation as an authoritative voice and a trusted expert in the energy field. Providing key insight into the state of play of the African energy sector, the book

represents a blueprint for transforming the energy landscape and tackling the pressing issue of energy poverty that affects billions of people globally. Through comprehensive research and real-world case studies, Ayuk explores the inherent challenges and opportunities in achieving an equitable and inclusive energy transition.

Drawing from his extensive experience as the CEO of the pan-African legal and advisory firm Centurion Law Group and the Executive Chairman of the African Energy Chamber Ayuk delves into the complex dynamics of the energy industry, shedding light on the disparities and injustices prevalent in both developed and developing nations. He proposes practical solutions, maintaining the significant role

natural gas plays in Africa's energy future and emphasizing the critical role of a diverse energy mix in eradicating energy poverty and creating a sustainable future.

"I am deeply honoured by the overwhelming response to 'A Just Transition: Making Energy Poverty History with an Energy Mix.' This recognition signifies a collective realization that we must address energy poverty with urgency and fairness. Africa is an energy-rich continent, and while global pressures to abandon fossil fuels continue to mount, this book puts into perspective the crucial role oil and gas will continue to play in Africa, and the growing need for Africa to adopt its own path to the energy transition," stated Ayuk, adding that, "By using every energy resource at our disposal, increasing investment across the entire African energy value chain, and prioritizing local content and capacity building, together, we can build a future where everyone has access to reliable and sustainable energy."

A synopsis of Ayuk's book can be found on page 24 of our April edition of CBN. Visit: <https://www.cbn.co.za/online-edition/cbn-april-2023/>

Mitigating explosion risk at petrochemical plants

FIRE protection is a major challenge in chemical and petrochemical production: Many highly flammable substances are processed with varying risks of fire hazards and explosive potential. In older facilities, different fire protection standards were implemented, depending on the age of the chemical plant. No matter if a monitor or a sprinkler system is used: foam is often the preferred system of choice.

Goods to be protected: Highly flammable substances such as oils, fuels, solvents or liquids containing alcohol.

Requirements to the extinguishing technology

Three areas at petrochemical plants require special protection:

- **Production area**
Along with deluge systems, permanently installed monitors are used that are supplied from stationary foam proportioners.
- **Tank farm**
Flammable liquids are normally stored in tanks with a floating cover or roof while explosion-risk fluid tanks have a fixed roof. In both cases, the foam is discharged from a foam pourer in the event of a fire, with the foam pourer being supplied from a stationary proportioner.
- **Material / bulk goods / high-rack storage**
In warehousing, deluge systems are used besides sprinkler systems, flooding the halls with extinguishing foam in conjunc-



FireDos monitors are suitable for firefighting with water or foam and can throw thousands of litres of water per minute more than 150 metres.

tion with stationary proportioners.

Stationary proportioners for efficient firefighting with foam

The operating principle of the stationary FireDos proportioners is purely mechanical as they are driven solely by the flow of extinguishing water. This allows installing the equipment at a safe distance from risk areas, i.e., in the vicinity of the extinguishing water tanks. Furthermore, FireDos proportioners can deliver premix over large distances with high flow rates thanks to the low-pressure loss.

Long-life monitors with maximum reach

In Petrochemical production areas, fixed monitors or deluge systems are used. Monitors provide advantages as they can be more cost-effective as pipework is minimised. A monitor's nozzle is decisive in the success of extinguishing regardless of wind conditions.

Thanks to the flow-op-

timized Oval Flat Design of the FireDos monitors, pressure loss through the monitor is minimal, allowing the monitors to achieve the greatest reach. In addition, FireDos monitors are manufactured in seawater-resistant materials and can be used as ATEX versions in areas of explosion risks. All FireDos monitors can be manually operated or using remote control.

Mobile extinguishing technology for flexible use

Factory fire brigades at petrochemical plants increasingly use mobile extinguishing units such as fire trailers that are versatile and flexible in use as back up to fixed systems. Fire trailers are designed for rapid deployment and are simple to operate. Equipped with a proportioner, monitor or a combination of both, fire trailers help to reduce the demand for personnel in a risk area.

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

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The impact smoking has on your organs and how this habit might affect your medical aid cover

ACCORDING to the South Africa Global Adult Tobacco Survey (GATS) 2021, 29.4% of adult South Africans (age 15+) are current tobacco users, including 41.7% of men and 17.9% of women. Alarming, 21.5% of children aged 13-15 are current tobacco users (boys 24.3%; girls 19.0%) who smoke cigarettes and other tobacco products. But smoking is a habit that affects nearly every aspect of your health, from your physical appearance to your internal organs and can lead to chronic health conditions. Smoking is a leading cause of preventable death worldwide and can significantly impact your medical aid cover.

The impact of smoking on organs One of the primary effects of smoking is damage to your respiratory system. Smoking causes irritation and inflammation of the lining of your airways, leading to chronic bronchitis and emphysema. These conditions cause coughing, shortness of breath, and difficulty breathing and can permanently damage your lungs. In addition to the direct damage to your lungs, smoking also increases your risk of developing lung cancer.

Smoking can also have a significant impact on your cardiovascular system. The chemicals in tobacco smoke cause damage to your blood vessels, leading to an increased risk of heart disease and stroke. It increases your blood pressure and heart rate, making your heart work harder to pump blood through your body. It can damage your heart and blood vessels and increase your risk of developing atherosclerosis, a condition in which fatty deposits build up in your arteries and restrict blood flow.

Your digestive system can also be affected. Smoking increases your risk of developing a range of digestive disorders, including peptic ulcers, gastroesophageal reflux disease (GERD), and colon cancer. Smoking can also interfere with the



absorption of nutrients in your digestive system, leading to malnutrition.

For women, smoking can lead to decreased fertility and an increased risk of pregnancy complications, including miscarriage, premature birth, and low birth weight. Smoking during pregnancy can also lead to long-term health problems for the child, including an increased risk of asthma, respiratory infections, and sudden infant death syndrome (SIDS). For men, smoking can also have an impact on reproductive health. Smoking decreases sperm count and motility and leads to erectile dysfunction. Smoking can also increase the risk of developing testicular cancer.

Smoking significantly impacts your overall health and well-being by increasing your risk of developing various chronic conditions, including diabetes, osteoporosis, and rheumatoid arthritis. It can also worsen asthma and chronic obstructive pulmonary disease (COPD).

How it affects medical aid cover Medical aid schemes in South Africa generally cover smoking-related illnesses and diseases, but they may have specific limitations and exclusions related to smoking. Most will cover treating smoking-related conditions, such as lung cancer, chronic obstructive pulmonary disease (COPD), and heart disease, under their prescribed minimum benefits (PMBs). PMBs are a set of defined benefits that medical

schemes are required to cover for all their members. PMBs include diagnosing, treating, and caring for any emergency medical condition and 27 chronic diseases, including some smoking-related illnesses. It is essential to read your medical scheme's terms and conditions carefully and seek support from healthcare professionals to quit smoking and improve your health.

Quick facts

- Over 39,000 South Africans die from tobacco-related diseases each year.
- Tobacco causes about 10% of male deaths, and 5% of female deaths (7.5% overall)
- Over 13% of non-communicable disease-related deaths (ex: ischemic heart disease, stroke, diabetes, COPD, lung cancer, etc.) in South Africa are attributable to tobacco use.
- 11.2% of adults (age 15+) who work indoors are exposed to secondhand smoke in enclosed workplaces, 10.8% in restaurants, and 18.0% inside their homes.
- 39.3% of youth (ages 13–15) in South Africa are around others who smoke in places outside their home, and 29.0% are exposed at home.

Source: <https://www.tobaccofreekids.org/problem/toll-global/africa/south-africa>

Plastic-eating fungi thriving in man-made ‘plastisphere’ may help tackle global waste

By Royal Botanic Gardens, Kew

A new study published in the Journal of Hazardous Materials by researchers at the Royal Botanic Gardens, Kew, and partners has identified a diverse microbiome of plastic-degrading fungi and bacteria in the coastal salt marshes of Jiangsu, China. The international team of scientists counted a total of 184 fungal and 55 bacterial strains capable of breaking down polycaprolactone (PCL), a biodegradable polyester commonly used in the production of various polyurethanes. Of these, bacterial strains within the genera Jonesia and Streptomyces have the potential to further degrade other petroleum-based polymers—natural or synthetic chains of molecules bound together.

The plastic-degrading microorganisms were sampled in May 2021 from Dafeng in eastern China, a UNESCO-protected site near the Yellow Sea Coast. The sampling confirmed the presence of a terrestrial plastisphere, a term that is relatively new to terrestrial ecology as past studies have primarily focused on marine environments. The microbiome of this “man-made ecological niche” of coastal plastic debris was further found to be distinct from the surrounding soil.

Scientists are increasingly looking at microorganisms, such as fungi and bacteria, to help tackle some of the most pressing challenges of the modern age, including the rising tide of plastic pollution. According to the United Nations Environment Program (UNEP), 400 million tons of plastic waste is produced annually, with



The study has confirmed the presence of a ‘terrestrial plastisphere’ ecosystem. The microbiome of this plastisphere was found to be distinct from the surrounding soil. Credit: Irina Druzhinina and Feng Cai.

a steep increase in levels of plastic pollution since the 1970s. Researchers are, however, hopeful that answers to this problem could be found in the plastisphere.

Past research has already recognized the potential of microorganisms to tackle plastic waste; a 2017 study led by researchers from China and Pakistan identified a strain of the fungi Aspergillus tubingensis that was breaking down plastic at a landfill in Islamabad, Pakistan. To date, 436 species of fungi and bacteria have been found to degrade plastic and Kew scientists and partners believe their latest findings could lead to the development of efficient enzymes designed to biologically degrade plastic waste.

Dr. Irina Druzhinina, Senior Research Leader in Fungal Diversity and System-

atics at RBG Kew, says, “Microbiologists across the board feel responsible for finding solutions to the ecologically friendly treatment of plastic waste because bacteria and fungi will be the first organisms to learn how to deal with this new material. We have no doubt that microbes will figure out ways to effectively degrade plastic, but this may take thousands of years if we leave nature to run its course. That is why our task is to utilize the knowledge we already possess of microbial biology, to speed up and direct the evolution of microbes and their individual genes to do the job now.”

Dr. Druzhinina adds, “The ecological niche of the Dafeng salt marshes is precisely why we chose to investigate the microbial communities present in the plastic waste there, and so far our findings have proven to be both exciting and promising.”

Despite the many exciting developments made in the field, the study's authors warn that our understanding of plastic-associated microorganisms is still in its infancy. Many questions about these ecological niches remain unanswered and the study's authors faced some limitations in precisely identifying the analyzed strains down to a species level.

RBG Kew is home to one of the oldest and biggest fungaria in the world with more than 1.25 million specimens, but the kingdom of fungi remains one of the great big mysteries of the natural world. Estimates vary but there could be several million species yet to be discovered on top of the more than 144,000 species described to date, and scientists are positive that among them are new sources of food, medicine, and other beneficial compounds.

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Trump conniving with Russia? Never!

I have to get something off my chest," announced The Prof, intriguing the congregation of convivial conversationalists – The Prof being a man of few, albeit erudite, words. Luke the Dude spoke for us all: "The floor is yours, Prof!"

"Thank you," nodded The Prof, "This has nothing to do with our local kakistocracy – the 'achievements' of the ANC are too depressing for words, except Minister Modise's 'fokol'.

"In the past several years I have had a growing sense that much of what Donald Trump does and says covertly promotes the interests of Russia, often against the interests of America. Quick examples: undermining the professional free media, tariff wars, attempts to break up Nato, sabotaging Americans' trust in their security services and courts, polluting American democracy all the way to the treacherous invasion of The Capitol – I can go on.

"Of course one is loath to ask the question, 'Could the president of the United States be a Russian asset?' Even after we saw Trump deferring to Putin's lie over solid US intelligence.

"Then I saw Thom Hartmann, in an opinion piece for Raw Story, confronting readers with exactly that. Briefly, here it is, with my take:

"In 1987 Trump visited Moscow and came back a changed man. Imagine he was groomed by the then KGB to run for president, wrote Hartmann.

"My first thought – unlikely. But the Russian intelligence service is very thorough. They would have known about his infatuation with money and sexy women, his disdain for honesty, paying contractors or loyalty (only to himself), his vanity, ambition, arrogance and his narcissism. And then, he's not very bright. They would have known exactly how to play him.

"There is also kompromat, involving a spicy spy tape of Trump with Moscow's sexiest – but, being kompromat, it won't be shown around. Thus, no evidence. Yet, Trump's timely and untimely (detailed) denials are suspicious. The lady doth protest too much.

"On his return from Moscow Trump blew \$100'000 on full-page ads in three major newspapers 'urging America to abandon and leave

defenceless its allies in Europe and Asia'. This was celebrated in Moscow, reported US intelligence.

"A month later Trump held a rally in New Hampshire to test the waters. No luck, so he set out to raise his profile, notably with attacks on Democrats – like Obama's birth certificate craziness and Hillary Clinton's emails. By 2016 he was ready.

"Trump chose Paul Manafort as his campaign manager – a man with long-standing links to the Kremlin and Russian intelligence. One example of Manafort's achievements was supplying Russian intelligence with insider information on six US states that could swing the election in the Electoral College. The Russians (successfully) used it to reach 26 million targeted Americans in social media campaigns to glorify Trump and demonise Clinton.

"In a press conference Trump looked heavenwards and asked, 'Russia, if you're listening, I hope you're able to find the 30'000 emails that are missing.' Russia launched its first attack on emails in Clinton's personal office later that same day.

OPINION

ON THE CONTRARY

The columnist is a journalist and editor based in Onrusrivier.

His awards for journalistic excellence include the Mond and the Sanlam Awards.

Pieter Schoombee



"Manafort was investigated by US intelligence and the Mueller probe, charged and sent to prison, where he stayed until he was pardoned by Trump.

Clinton won by 3 million votes but lost the 2016 election to Trump in the Electoral College.

"And there's so much more," lamented The Prof as The Governor called time.

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And now the weather: Cloudy with scattered showers of plastic

By Marlowe Hood

THE Earth is showered by microplastic particles falling from the sky.

Diplomats from 175 countries recently gathered in Paris for plastics treaty talks and it is estimated that France's capital was showered during the five-day talks by billions of microplastic particles falling from the sky, according to the first-ever plastics pollution weather forecast.

The predicted downpour ranged between 40 and 48 kilograms of free-floating plastic bits blanketing greater Paris every 24 hours, the scientists involved told AFP.

In heavy rain, the "plastic fall" is likely to increase up to tenfold.

Marcus Gover, head of plastics research at the Minderoo Foundation based in Perth, Australia said "Plastic particles break down into the environment and this toxic cocktail ends up in our bodies, where it does unimaginable damage to our health."

Concern over the impact of plastics on the environment and human well-being has surged in recent years along with a crescendo of research documenting its omnipresence and persistence.

In nature, multi-coloured microplastics—by definition less than five millimetres in diameter—have been found in ice near the North Pole and inside fish navigating the oceans' deepest, darkest recesses.

Plastic debris is estimated to kill more than a million seabirds and 100 000 marine mammals each year, according to the United Nations Environment Programme, and filter-feeding blue whales consume up to 10 million pieces of microplastic every day.

'Heads in the sand'

The equivalent of a garbage truck's worth of plastic refuse is dumped into the ocean every minute.

In humans, microscopic bits of plastic have been detected in blood, breast milk and placentas.

Animal tests have linked chemicals in microplastics to increased risks of cancer, reproductive problems and DNA mutations but data on human impact is still lacking.

"In our bodies, the plastics we need to be most worried about are probably those between 10 nanometres and one micrometre," said paediatrician Christos Symeonides, a researcher at Murdoch Children's Research



Hospital and the Minderoo Foundation.

"They're the ones most likely to get through our biological membranes into tissues, including the blood-brain barrier," he told AFP.

"We're just now pulling our heads out of the sand when it comes to the health hazards of microplastics."

The Paris conference covered significantly larger particles, mostly synthetic fibres at least 50 microns in length.

For reference, a human hair is about 80 microns (or 80,000 nanometres) across.

The method developed by Minderoo Foundation researchers does not measure plastic falling through the atmosphere in real time.

Rather, it is based on research done in Paris starting in 2015 that collected samples from multiple locations year round and sifted through them in the laboratory.

'Virgin' plastic

This pioneering work by French scientists found that most plastic particles falling across Paris' 2,500-square-kilometer catchment area were nylon and polyester, probably from clothing.

Other bits were cast off by tyres, which shed them especially when vehicles brake.

Over an entire year up to 10 tons of microplastic fibres settle over the Paris area, they estimated.

The density of "plastic fall" can increase by an order of magnitude during heavy rain.

Measurements taken by other teams have replicated these findings in half a dozen cities around the world.

Microplastics that hit the ground can still be ingested or inhaled when stirred up, for example, on a windy day.

Last year, 175 nations agreed to forge a legally binding treaty to curb plastic pollution, aiming to complete negotiations by 2024.

No major breakthroughs resulted from the technical talks, but major policy debated included a global ban on single-use plastic items, a "polluter pays" scheme and a tax on new or "virgin" plastic production.

These policies—even if fully implemented—may not be enough to cut consumption, according to experts and green groups calling for an outright cap on plastic production.

On current trends, annual production of fossil-fuel-based plastics will nearly triple by 2060 to 1.2 billion tons, while waste will exceed one billion tons, according to the Organisation for Economic Cooperation and Development (OECD).

Sources of microplastics in the oceans

Releases of primary* microplastics to world oceans in %

SYNTHETIC TEXTILES

Microplastics pass from washing machines via waste water into oceans

35%

PLASTIC PELLETS

Before processing into products

0.3%

2%

3.7%

7%

ROAD MARKINGS

CITY DUST

TYRES

Abrasion while driving

1.5 million tonnes per year estimated

Source: IUCN.org *directly released into environment in form of small particulates

