

Business News

FOUNDED 1980

JULY 2021

<p>All aboard... the electric bus</p>  <p>3</p>	<p>All aboard... the hydrogen train this time.</p>  <p>10</p>	<p>All aboard... NSRI's latest rescue vessel</p>  <p>20</p>
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Kit builders fly high



Pictures credit: Matt Stow Photography.

THERE are at least two unlikely industries, based in Cape Town, that have achieved export success and worldwide recognition for quality and value for money.

One is luxury yacht building and the other... is in experimental and leisure aircraft.

Robin Coss established Robin Coss Aviation (RCA) over 20 years ago, spotting a niche in the home or kit building of leisure aircraft which was 'taking off' following the availability of aircraft kits from manufacturers in the USA such as Van's Aircraft who have perfected the home build model of recreational aircraft.

Where's the niche?

Robin Coss explains: "There are plenty of aviation enthusiasts who dream of owning / flying their own aircraft. However, *certified* aircraft are usually beyond the means of the average enthusiast.

"Our civil aviation regulations allow for an experimental sector - the kit building market - where perfectly sound, approved designs, construction techniques and materials can be purchased for assembly at home in one's garage.

"Perfect, if you have the time, space, skills and inclination for 'home' construction. Our niche is in providing a fully equipped workshop with expert mechanics and technicians for those enthusiasts who don't have the space, the skills or who's enthusiasm has waned, and want 'someone' to build, maintain and in some cases repair or upgrade their pride and joy".

RCA's business was built on this premise and has expanded into general aviation maintenance and repairs and the installa-

tion of a large capacity spray both allows the repainting of RV and similar sized aircraft and helicopters.

Co-director Damon van Niekerk takes up the story: "The variety and affordability of the Van ready to assemble kits in a selection of single, two and four seater designs and engine configurations stimulated the popularity of the leisure market as an affordable way to go flying. An enthusiast can start with a basic configuration and as time and funds permit, add on to the level of avionic sophistication, comfort and interior trim.

"These options opened other avenues for us, establishing relationships with international suppliers of advanced navigation, GPS and communications equipment. With these relationships went personnel training courses enabling our business to offer customers the latest sophisticated equipment at a level they desired or could afford.

"Requests for superior interior finishes, sound deadening and comfort led us to develop our own custom interiors and finishes for our range of RV aircraft. Our highly skilled painting department have produced some amazing paint schemes on our RV aircraft and we have expanded our approvals be able to offer this service to third party clients including those with certified aircraft and helicopters" he explained.

A feather in RCA's cap was when the owner of Van's Aircraft paid them an unexpected visit and was suitably impressed with not only their facilities but build quality, saying that it matched and exceeded the levels of fit and finish found amongst American builders.

RCA's expertise started spreading

beyond our borders and today they have clients in all the neighbouring states - Botswana, Namibia, Zimbabwe and Mozambique and further north, but not just with recreational flying enthusiasts, but with businesses such as mines, field service and construction companies where personnel have to cover long distances to remote sites and road travel isn't a feasible option. The cost benefits of Van's products compared to certified aircraft, their straight forward simple rugged design, coupled with RCA service back-up, has made them a winner with business operations throughout the region.

The latest export success has been to an Australian client whose new RV10 four seater aircraft was delivered to him during the Covid pandemic. This aircraft has recently been joined by one of RCA's RV8 aircraft belonging to an ex-pat South African who decided to take his RV with him.

Bursting at the seams

As one might imagine, this growing business has placed space constraints on the company's facilities at Cape Town International Airport (CTIA), which now support 20 highly trained mechanics and technicians, especially as more and more customers return their aircraft when servicing becomes due, which often means ferrying planes to Cape Town from different parts of the country.

"Being located at CTIA and being subject to strict air movement regulations can have its disadvantages which led us to investigate relocating to a more attrac-

Continued on P2

Anuva take on Cape Mohair



Anuva Investments, one of South Africa's leading 12J venture capital companies, have increased their stake in Cape Mohair from 46% to 69% by way of an additional capital investment of R10million. A further R5million in loan capital has also been allocated to purchase new machinery which will go a long way to increasing and improving production and enable the company to upskill and employ more staff.

Established in 1991 and based in Cape Town, Cape Mohair is a South African manufacturer of mohair socks. Its range includes medical, outdoor, workwear and leisure socks.

Commenting on the deal, Johan Gouws, CEO of Cape Mohair believes that Anuva's investment into Cape Mohair has given their team the necessary breathing space to manage the day-to-day running of the business more effectively and has created a platform for them to be more strategic in their decision making, taking their business to the next level. "With their continued support and with the purchase of new machinery we have been able to increase our production capacity and product line, and, most critically, create more job opportunities," he explains. Plans are afoot for additional brand extensions.

While Anuva remain committed to investing in SMMEs and building a portfolio of companies that create jobs, its focus for now will be on developing and growing the companies they are already invested in, namely Biodelta, NuMobile, Sexy Socks, Mastercare and ARA, with a view to sustaining employment, improving profitability, promoting positive cash flows, and delivering robust returns to their investors.



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Agilitee to spark Visual International

VISUAL International, a small property developer based in Stellenbosch, has jolted the local investment community with a decision to 'acquire' Agilitee Africa, which makes a claim at being the first electric vehicle manufacturer in Africa.

Agilitee is currently controlled by entrepreneur and investor Mandla Lamba, who is already an indirect shareholder in Visual through investment company Verityhurst.

Verityhurst, which was founded and is headed up by Lamba, recently bailed out a cash strapped Visual by subscribing for 133 million new shares to raise R5.3 million.

The acquisition of Agilitee - which could be construed as a reverse takeover as the deal will be settled by the issue of new Visual shares - is very suddenly veering away from the group's property development core. A possible acquisition price has not yet been



mooted.

Officially Visual is a property developer that acquires land, rezones the land, installs the relevant services and then constructs houses and apartments on the land for sale to homeowners or investors. According to Visual's last annual report to end February 2021, close to 500 homes and apartments have been developed at Stellenbosch. But the group admitted that further development has been frustrated by the lack of funding for property development over the past few years.

During 2021 Visual recommenced with its business of property

development, and its first projects were the developments of Stellenbosch Junction and The Marine, Strand. The group said revenue would flow from these projects from mid-2021.

The rationale, or advantages, of putting an electric vehicle manufacturer and a property developer are not clear at this early juncture.

An official statement from Visual noted Agilitee was at the forefront of the 4th industrial revolution in electric vehicles - adding that it was important to realise that green technology was the future "with the

aim to change the continent to driving clean energy solutions and carbon reduction".

Visual added that the Agilitee team was pioneering, researching, importing, assembling, manufacturing, and franchising electric vehicles technology. The Electric Vehicle solutions include battery swapping stations and solar charging facilities across Africa.

On the property side, Visual will be involved in the role out of the Agilitee franchise sites - including the acquisition and managing of properties.

The first motorbike and scooter models were launched in Cape Town in May. Agilitee plans to open another nine more flagship outlets in major cities across the country as well as smaller dealerships in towns and metros. The first four-wheeler retail outlet is planned for launch in 2023.

The three models

shown in May were the Wild Grace, a café racer for the road (price tag: R175 000; the RTF (Return to Freedom) scooter (R55 000) and the LoadEX, a delivery scooter with racks for load boxes front and rear (R34 000).

According to Agilitee's website, the assembly plant is expected to be operational in the last quarter of 2022. Initially, the components will be imported from India and assembled locally, but there are plans to convert the assembling plant into a comprehensive manufacturing plant.

CBN will watch developments closely with the allusions to a 'local Tesla' almost unavoidable. Of course, it's still early days. Visual still needs to determine a valuation for Agilitee, and shareholders (as well as CBN) will also be itching to get sight of the electric vehicle manufacturer's financial statements.

Shopping in the suburbs

CAPE TOWN-based investment company Trematon Capital, which is steeped in real estate investing, has made a significant acquisition of retail precinct - notwithstanding the lingering effects of Covid-19 still clouding property sector prospects.

Last month Trematon - via its 60% held subsidiary ARIA Property Group - has acquired Riverside Mall in Rondebosch from

Redefine Properties.

ARIA already owns the nearby Maynard Mall in Wynberg, meaning ARIA now has a substantial presence along Cape Town's southern suburb's main drag.

The Riverside Mall contains a newly upgraded Checkers that anchors the centre - trading alongside Vitacare Pharmacy, PostNet, Crazy Store, Standard Bank, FNB and ABSA.

ARIA will pay R120 million for Riverside Mall - which compares to a property valuation of R110 million given by Redefine in its interim results to end February 2021.

The profit attributable to the Riverside Mall for that six month period was R5.25 million.

Meanwhile niche property player Stor-Age - which specialises in storage units - reported like-for-like rental income up 8.6% in its core SA market with total occupancy of

90.1% in the financial year to end March.

The Cape Town-based group said portfolio occupancy was up 28 500m² and the investment property value was up a sprightly 12.3% to R7.57 billion.

Stor-Age reported that the recently completed Sunningdale and Tyger Valley had commenced trading in May this year.

The group said three new development sites had been secured.

Stor-Age CEO Gavin Lucas said: "The past year was one

of historic extremes that unequivocally affirmed the resilience of Stor-Age's business model."

Lucas pointed out that the continued development of its digital capability meant that Stor-Age could introduce an online sign-up feature which was critical to new tenants in these contact-averse times.

Lucas said Stor-Age's new property pipeline in SA comprised eight new properties at an approximate development cost

of R685 million.

This would add around 46 500m² GLA (gross lettable area) to the portfolio.

Stor-Age is forecasting an increase in dividend distributions for the year ahead of between 3% and 4%.



Kit builders fly high

Continued from P1

tive site, but some of the region's existing airfields were ruled out - such as Delta and Morningstar which have issues of their own" said Coss.

"We have identified a completely new site and are in advanced negotiations with the land owner, having completed and submitted development plans and an EIA to Council. Located adjacent to the N7 highway between the Philadelphia and Klein Das-

sonberg exits, the site would include an 800 metre long runway and virtually unlimited space for hangars, clubs and similar support businesses. We are discussing investment opportunities with various interested parties to establish a West Coast flight centre there which would provide long term security for businesses like ours and flying clubs that are presently threatened with closure" he said.

THE resilience of fishing group Oceana's Lucky Star canned pilchard brand was again demonstrated in the half year to end March.

Oceana's important canned fish and fishmeal segment managed to hold revenues steady at R2bn despite a variety of market and operational challenges.

Oceana CEO Imraan Soomra reported that

canned fish demand had remained positive with market share growth from the high base of the previous period.

He stressed this was an important achievement in a trading environment where the disposable income of consumers had come under pressure.

Soomra highlighted that Lucky Star had won market share in the key Western Cape

market.

He noted: "Canned fish sales demonstrated resilience for most of the trading period but was negatively impacted by low 'stokvel' volumes in December and exacerbated by lower supply service levels in March due to lower frozen fish availability."

Soomra said the combined effect of Covid-19 lockdown restrictions, global

container shortages and port delays in Cape Town resulted in a 60% decline in frozen fish imports. This, he explained, reduced production levels and canned fish inventory available for sale.

But Soomra said the overall volume decline of 5% had been positively offset by the effect of a 4% price increase affected in November. "Operating margins in the canned

fish segment remain strong, supported by ongoing procurement and production efficiencies."

Interestingly, Oceana made no reference to further endeavours in the broadening of the Lucky Star product range. The group is hoping to trade off the Lucky Star brand strength to can non-seafood products like baked beans and corned beef.



OUR PARTNERS



Golden Arrow tests electric buses

HOSKEN Passenger Logistics and Rail (Hosken Pax) – which has Golden Arrow Bus Services as its main profit driver – saw a 20% decline in revenue to R1.6 billion as Covid-19 lockdown restrictions on mobility reduced passenger numbers.

But the group remains firmly on the path of technological innovation – including testing electric buses – to bolster future profitability.

Interestingly, the contraction in passenger bus operations over the year – coupled with various cost saving initiatives – meant Hosken Pax made a 19.4% savings in operating expenses

to R1.27 billion (from around R1.6 billion in 2020).

Hosken Pax executives said all major capital expenditure – including its fleet replacement program – was put on hold for the 2021 financial year. This resulted in a net reduction in debt of R152.8 million from the 2020 financial year.

Executives said the significant drop in passenger volumes at Golden Arrow Bus Services triggered a commensurate reduction of the fleet, down-sizing of manpower and the implementation of short-time schedules to optimally align demand with supply to contain operational expenses.

They disclosed that management temporarily suspended long term operational strategies and adopted problem-solving approaches to deal with the unpredictability ushered in by lockdown.

Ironically, the changing travel patterns of passengers brought opportunities. More passengers moved to travelling during off-peak, which resulted in better asset utilisation and cost savings.

But during the financial year, there was a dramatic increase in armed robberies aimed at buses and its passengers. Hosken Pax executives noted that after a series of high-level meetings, local author-

ities agreed to install cameras on buses and deploy a dedicated public transport police force. “Additionally, GABS have begun to install drop-safes in buses for drivers’ takings.”

In what might prove a huge leap in innovation, Hosken Pax executives disclosed that Golden Arrow Bus Services negotiated the use of two electric buses – from a leading international manufacturer for testing during the current year.

“This provides an opportune base for the testing and commissioning of electric buses and the results will afford an empirical basis for the comparison of running



costs vis-à-vis diesel powered buses.”

The executives added that innovative scheduling of buses and optimum allocation

of manpower – as passenger volumes stabilise to pre-COVID levels – would be the immediate focus in operations. “The appli-

cation of appropriate new age technologies is imbedded in the strategic blueprint of the engineering and support services.”

Western Cape property proxy showing immunity

SPEAR, which could be seen as a proxy for the Western Cape real estate market, is not expecting an easy recovery from the Covid-19 slump that has laid the local property sector low for the last 15 months.

In its forward looking statement tagged to its recently released year to end February financial results, Spear CEO Quintin Rossi warned it would be critical for management to remain close to the pulse of the business and continue to seek growth and value-add opportunities.

The group, though, believed its Western Cape focus was one of the key attributes that has given rise to Spear’s strong rental collection profile under the Covid-19 circumstances.

Rossi said: “Navigating into financial 2022, the market conditions

and the economic outlook in South Africa, and in Spear’s case, the Western Cape, remain uncertain to a degree with some green shoots emerging as retail sales increase and restaurants, destination retail malls and airports become busier. Predicting the recovery path and the duration of such a recovery remains very difficult, but we are confident that this recovery has begun and will gain momentum.”

Spear’s management’s guidance is a distribution per share growth of 6% – 8% for financial 2020 with the dividend payout ratio strategy maintained at less than 80% of distributable income.

This robust guidance is based on the ongoing recovery of the macro-economic environment and that there will be no third or fourth wave of

infections followed by a lockdown. Spear is also banking on no major tenant failures take place in the year and that international travel markets resume and travellers re-enter SA.

Rossi believed commercial office vacancies would in the shorter term trend upwards with office vacancies normalising into the medium term as return-to-work plans were executed and companies started to focus on business and operational growth.

He reckoned Spear’s industrial and retail portfolio would continue to trade strongly through the economic recovery and post-pandemic environment – providing income consistency and ensuring demand for these rental properties remains strong.

What Rossi did stress

was that management’s proximity to assets remained excellent. “Our ability to speedily resolve business and operational issues remains exemplary. Obsessive focus on rental collections will remain as meaningful inroads will continue to be made on historical receivables.”

Rossi confirmed management would also continue to actively dispose of non-core assets – which would include the focused exit from its hospitality assets.

Looking back at the year to end February 2021, Spear’s portfolio occupancy rate remained in the mid-90%.

Spear’s current property portfolio consists of 32 with an average value of R139 million per property, which was a 7.33% increase from financial 2020 (R130

million per property). The total gross lettable area (GLA) at year-end was 453 458m², and was valued at R4.5 billion.

Rossi disclosed that the portfolio’s income stream is underpinned by contractual escalations of 6.81%, a weighted average lease expiry of 27 months together with a high percentage of A-grade tenants (listed and large nationals) comprising 52% of the total portfolio GLA.

The overall vacancy at the end of February was only 6.16% – albeit higher than the 2.88% recorded in financial 2020.

Spear’s industrial portfolio (GLA: 243 162m²) was almost 98% occupied. Rossi said the industrial portfolio had been a significant moat around Spear’s business during the year with 54% of rentable

GLA being industrial properties. “During the peak of the pandemic the resilience and quality of covenants of the industrial portfolio has stood out. As early as May 2021 demand for Spear’s well-located industrial rental opportunities has continued consistently over the year.”

Spear’s industrial portfolio offers a diversified industrial offering situated in well-established industrial nodes – consisting of mini, mid-size and large modern logistics units. Two new ten-year development lease agreements were concluded with packaging giant Nampak and Grindrod Logistics.

The commercial hub was around 87% occupied. Rossi said the future of work and how it affects the office sector were arguably key unknowns within

the real estate environment.

He said office sector lease renewals continued to be concluded, although under very difficult trading conditions and extremely tough negotiations as rent preservation remained a top priority. During the period 35 408m² of commercial space was renewed or relet with a negative rental reversion of 1.79%.

In Beacon Way, Beaconvale Spear concluded a long-term lease and redevelopment agreement with Nova Marine, a subsidiary of Sturrock Grindrod Marine Services. The property will be redeveloped into a state-of-the-art container terminal and bulk storage facility at a cost of R44 million.

Both of these leases are 10 years in duration.

Survey highlights rising confidence amongst manufacturers

THE Q2 Absa Manufacturing Survey has seen a significant improvement in overall sector confidence, with business confidence rising by 21 points to 46 points during the quarter, the highest level since 2012.

“The increase was largely driven by strong selling price hikes and output increases,” said Justin Schmidt, Head of Manufacturing Sec-

tor at Absa Retail and Business Bank. “Better than expected demand resulted in higher capacity utilisation and early indications suggest that this may continue – manufacturers are positive about the export outlook over the next 12 months.”

The quarterly survey, which covers approximately 700 businesspeople in the manufacturing

sector, was conducted by the Bureau for Economic Research (BER) at Stellenbosch University between 12 May and 31 May 2021. The index ranges between zero and 100, with zero reflecting an extreme lack of confidence and 100 extreme confidence.

The survey findings echo recent data releases, which showed positive signs of growth

and continued recovery. South Africa’s real GDP grew by a seasonally adjusted 4.6% quarter-on-quarter in Q1 2021, with manufacturing continuing its recovery with a 1.6% increase quarter-on-quarter. Looking ahead to the second quarter, the Absa PMI rose to 57.8 points in May 2021 from the April 2021 figure of 56.2 points.

But while there is evidence of green shoots, the sector is not out of the woods yet. For the third quarter in a row, the majority of manufacturers indicated low levels of raw material stocks relative to their planned production. “This is having a knock-on effect on input prices for manufacturers,” noted Schmidt.

The majority of manufacturers have also noted

that finished good stocks have been low relative to expected demand, with this sub-index reaching its lowest level on record. “This is not only a further indication of the shortage of raw materials available but, positively, an indication that demand continues to exceed expectations.”

Manufacturers’ expectations regarding the next 12 months are

more optimistic with the majority of manufacturers expecting trade and business conditions to improve. “Forward looking expectations need to come to fruition before we will see sustained investment into new capacity in the sector. However, load shedding as well as the impact of the third wave of Covid-19 pose a risk to the recovery,” said Schmidt.

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Fooling the people some of the time

ONE of the benefits of the internet and social media, at least to this reader, is that government and politicians can be held to account by commentators almost before their lips have stopped mouthing the utterances that they expect us to believe.

Take the statement by previously respected Pravin Gordhan, minister of Public Enterprises, who recently announced the so-called 'privatisation' of SAA after months of business rescue negotiations and even more wasted taxpayers

money - better spent on procuring COVID vaccines and saving precious lives.

Social media commentators were quick to expose that the Takatso 'privatisation' deal was just another smoke and mirrors instance of an ANC vanity project, tightening government control of a failed state owned enterprise and more crony appointments.

With no proper aviation partners in sight - who would want to be in bed with our corrupt government, and the illegal determination

by the ANC to 'save' SAA after government interference, corruption, theft, freebies and crony appointments of incompetents led to the downfall of the state airline in the first place. Who in their right mind would want to join in this cesspit?

They say that everyone has his (or her) price, but I'm surprised that they've managed to rope in Gideon Novack as CEO whose public persona has always been that of a straight shooter and Kulula hero, clearly with some aviation credentials.

To give the deal some credibility perhaps?

Surely one has to question the integrity of someone who knowingly accepts a chalice so poisoned? How will he balance this new role with that of the CEO of Lyft I wonder?

Is the SAA/Takatso deal real? - asked DA MP, Alf Lees.

"While Minister Gordhan announced the deal with great fanfare on 11 June 2021, he failed to provide any real substance of what this would entail. There are a host of unanswered questions

that must be dealt with in order to ensure that the proposed deal is not just another form of SAA bailout disguised as a deal via the Public Investment Corporation (PIC) or other development finance institution (DFI), or yet another enrichment exercise for connected ANC cadres..."

Yes, and the most pressing, is where is the R3,5bn required to re-float SAA going to come from as Minister Gordhan has assured us that it won't come from the public purse, now or in the future to keep

this lame duck afloat.

And speaking of lame ducks...

While many will welcome the President's announcement that the cap on power produced by independents has been raised to 100MW, it still doesn't address the malaise that bedevils Eskom. A step in the right direction perhaps but too little too late, and the thieving still goes on, which analyst Ted Blom estimates at more than R40bn a year.

While some companies and larger corporations, plus some

well healed citizens may take the step to go 'off grid', this will take time (and money) so one won't be seeing an end to load shedding any time soon.

But the real question that doesn't appear to be addressed is that of the future of Eskom and power generation in South Africa. Faced with power stations that have reached the end of their useful lives, climate change, environmental pollution and the long time line to construct base load facilities, what's the plan Stan?

SACAP Stakeholder Convention planned for August

THE South African Council for the Architects Profession (SACAP) Stakeholder Convention will be taking place on 26 August 2021.

The Convention

forms a part of dmg events' 8th annual African Construction and Totally Concrete Expo, which offers 360-degree solutions for the Southern Africa's built environment

and acts as a hub for industry experts, buyers and manufacturers of services and products, from all over the world who have an interest in Southern Africa's construction sector.

The hybrid format of the event will bring together 250 in-person attendees to the Sandton Convention Centre, Johannesburg and a further 500-participants will

join through the digital platform. Against the theme, 'rebooting and repositioning the architectural profession', this is one of the many intervention programmes that SACAP

has been mobilizing in its mission to re-brand the architectural profession in South Africa.

According to SACAP President, Mr Charles Nduku: "Our goal is to inspire and motivate

our professionals to become pioneers in bringing about transformation, diversity, leadership and innovation in the built environment so that architecture plays a more active role in shaping our society to reflect South Africa in all its diversity."

Architectural professionals are innovators, problem solvers and have to wear both the artist and scientist hat. They are undeniably significant custodians of the built environment who play a pivotal role in the overall socio-economic development of South Africa. The 2021 gathering is a call for closer partnership and collaboration between the profession and government in order to achieve the development imperatives of modern South Africa, especially as we undertake recovery efforts and re-imagine our world post Covid-19.

The Convention will boast an impressive line-up of industry speakers and will incorporate a number of curated and experiential interventions that will surprise and engage participants. In addition, the programme will offer CPD accreditation, ensuring that participants meet their professional goals.

SACAP and dmg events will observe all the required protocols which means that in-person participation will be limited to gazetted attendance numbers, anyone planning to attend the live Convention, should ensure they register early to secure their spot so as to avoid disappointment, as space will be limited.

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An oil and gas drive for Cape Town

THE ongoing coronavirus pandemic, and the subsequent lockdown regulations implemented worldwide, has caused unmitigated impacts on the global economy which have had a major impact on the tourism and events industry. Relying heavily on international travel and gatherings, tourism and event restrictions have led to significant revenue losses and industry-wide employment risks. However, as countries reduce measures and economies begin to open up again, a unique and strategic opportunity has emerged in which the African energy sector, in particular oil and gas events, can revive the tourism and events industry, breathing life into African markets.

“According to the Tourism 2020 report released by Statistics South Africa, foreign arrivals dropped by 71% from over 15.8 million in 2019 to less than 5 million in 2020.”

South Africa is considered one of the top tourism destinations in Africa, ranking sixth out of the world’s seventeen megadiverse countries. Tourism’s contribution to Gross Domestic Product in 2019 was 8.7%, demonstrating an average annual increase of 1.21% since 2000. One of the primary tourism sub-sectors in South Africa is the events industry, with the country ranked number one in Africa in the International Congress and Convention Association in the World Economic Forum’s Travel and Tourism Competitiveness Report. According to Research and Markets Event Management in the South Africa 2020 report, in 2019, 11.4% of foreign tourism was attributed to the events industry with an estimated one million delegates hosted annually. In addition to attracting tourists to South Africa, the events industry is responsible for job creation, business expansion, investment, and increasing revenue across multiple support service sectors such as the food, health and infrastructure industries.

However, when COVID-19 hit, the tourism and events

industry experienced significant impacts including loss of income, job redundancies – in April 2020 11% of tourism businesses made some or all of their staff redundant – as well as tax losses for the economy. According to the Tourism 2020 report released by Statistics South Africa, foreign

arrivals dropped by 71% from over 15.8 million in 2019 to less than 5 million in 2020. Additionally, the business events sub-sector saw international delegate arrivals decline by 78%.

Despite these impacts, the easing of restrictions in South Africa, coupled with expected COVID-19

case declines in summer, has created the opportunity for oil and gas events like the upcoming African Energy Week (AEW) 2021 to revive South Africa’s tourism industry. AEW 2021, an interactive networking event that unites global energy stakeholders on the 9th-12th of November, is expected

to set a new standard for Africa-focused conferences, presenting a multi-platform, community-oriented approach to energy events. Ironically, at a time when the oil and gas industry has taken a strong move towards the energy transition, an oil and gas event has the potential to revive a myriad of sectors in

Africa. AEW 2021 will take place at the V&A Waterfront in Cape Town and ensure that all COVID-19 regulations are adhered to in order to present a safe and productive event. The event’s strategic design, comprising the utilization of multiple venues over a four-day period, not only com-

plies with COVID-19 social gathering limitations, but ensures that multiple venues and event companies benefit from this one event. With on-the-day rapid testing facilities and sanitizing stations, AEW 2021 is demonstrating that Africa-focused events can and should take place in Africa in 2021.

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Bank's switch to recyclable payment cards will reduce CO₂ and tons of plastic

HSBC is introducing sustainable payment cards which by the end of 2026 it will eliminate single-use PVC plastic, in favour of recycled

PVC plastic (rPVC). The programme - which includes HSBC's debit, credit and commercial cards - is part of the bank's strategy

to reduce its carbon emissions and achieve net zero in its operations and supply chain by 2030 or sooner. Working with global

cards manufacturer IDEMIA, the bank will introduce new cards gradually across its locations. Rollout started in Malaysia in

January 2021 followed by Sri Lanka and in the UK. It will then extend across further countries and markets by the end of 2021, including Australia, Canada, Indonesia, Macau, Mexico, Singapore, UAE and US.

Based on the current volume of cards issued by HSBC per year (23m), the move to rPVC will reduce CO₂ emissions by 161 tons a year. Each card will also reduce plastic waste - 73 tons per year, that's the weight of over 40 cars.

Taylan Turan Group Head of Customers, Products and Strategy at HSBC, said: "HSBC is committed to achieving net zero by 2050 or sooner; and we've pledged to work with our customers in all sectors to reduce emissions. Evolving our payment cards to eliminate single-use plastic cards is part of our aim to be net zero in our operations and supply chain by 2030 or sooner."

Global research conducted for HSBC by Mintel found a majority (77%) of consumers agree that 'financial services firms have an important role to play in creating a more sustainable society'; when it comes to their appetite for payment cards made from sustainable materials, over two-thirds (67%) showed high levels of interest. A separate global survey, conducted for IDEMIA by Dentsu Data Labs found that most people (92%) think their bank should actively contribute to preserving the planet; and a majority (87%) expect their banks to offer eco-friendly cards.

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Saving energy in conveyor tension automated systems



Automatic Systems are paired with IE3 Motors that are top premium efficiency and reduced energy consumption. They also have Class H insulation that is well suited for VFD operation.

Variable frequency drives

Invertek Drives offer lower energy consumption and significantly reduced energy bills with its Optidrive range of variable speed drives. Optidrives allow highly energy efficient control in a wide range of industrial and commercial applications by matching motor speeds to the exact requirements of each application, saving energy and providing improved control.

Optidrive AC drives can also monitor energy usage with an inbuilt energy consumption meter that allows energy consumption to be clearly displayed and savings to be calculated.

Control Philosophy

Dymot's control philosophy in controlling the tension is based on torque control over a PID Loop.

So adjustments are made if and when required but winch power is shut off during non-adjustment periods resulting in only standby mode with the PLC, HMI and loadcell powered.

Dymot is continually improving and developing advanced systems in the bulk materials handling and is an exporter of choice to more than 50 countries in the world.

DYMOT together with its standard brands of equipment is reducing energy consumption on mines all over the world. Governments have already introduced energy saving targets and are putting legislation and regulations in place to ensure they are met.

the latest manufacturing techniques and gearbox selection with some winches running above 90% efficiency. These purpose built winches and sheaves are fitted with bearings ensuring less maintenance, less power consumption and extended life.

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introduction of strong, high-performance products and cost-centric services are needed now more than ever.

By staying ahead of the demand and adapting to the curve, Kemach has re-aligned its business to current needs and are responding to the fast-paced requirements of customers. Les Lothian, CEO of Kemach Equipment says, "We remain a trusted company with a steadfast focus on following strategic goals

determined by local needs and global events. We continually look at ways to expand our offering and ultimately give our customers what they truly need."

Les Lothian further adds, "The immediate focus for Kemach is on growth within, and for South Africa. We've established ourselves as a trusted partner across the region and Kemach is encouraged by the positive upturn in developments that we are see-

ing in the construction, earthmoving and materials handling sectors."

By offering customers leading brands such as Kemach Forklifts, Kemach Lubricants and McCloskey and by working with OEM principals in providing much needed market feedback, Kemach Equipment continues to be a company that appeals to various industries as a best business decision – today and into the future.



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Submerged chain conveyors for harsh conditions

BMG's extensive power transmission range encompasses HEKO conveyor components, including round link chains and components for submerged chain conveyors, which have been designed for dependable use in many harsh environments.

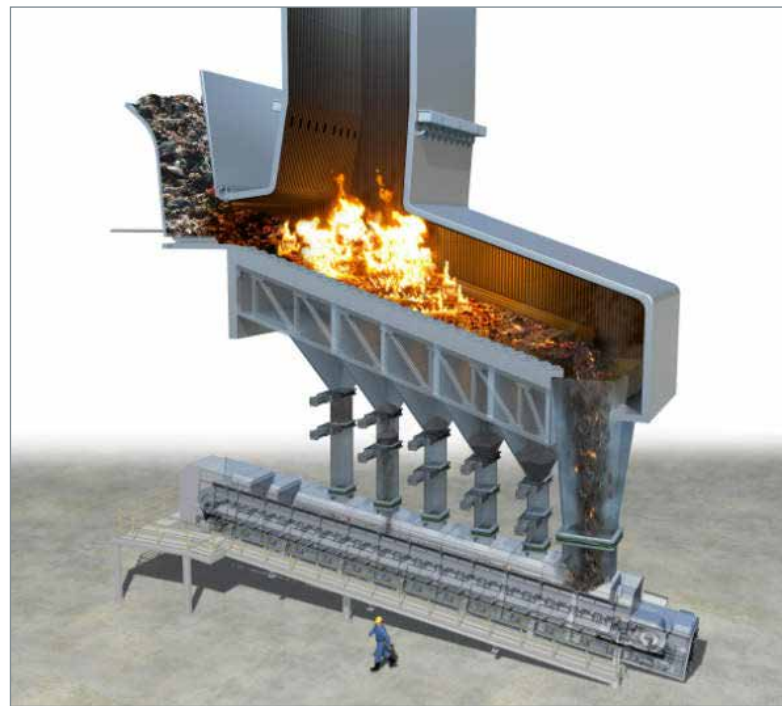
"High wear-resistant HEKO components for bulk material conveyors, which are manufactured in Germany to pristine quality standards, enhance BMG's extensive range of chain products," explains Carlo Beukes, business unit manager, power transmission division, BMG. "Through the supply and support of HEKO products, BMG boosts its solutions service to its broad customer-base, by optimising the efficiency of bulk material conveyor systems.

"We recommend the use of submerged chain conveyors for our

customers who work with coal, wood, refuse and scrubber sludge, to effectively collect, cool and drain bottom ash from a boiler discharge. These conveyors, which are fitted with secure releases, are designed to handle bottom ash efficiently and safely.

"Submerged chain conveyors are often installed for the transportation of slag granulated material, ash made of stone and brown coal firing, as well as metallurgical process residue or waste ash. Fluid slag or hot ash from melt firing is filled in a vessel with water for cooling and then transported via a chain conveyor from the vessel to an ash bunker.

HEKO chain strands are highly wear-resistant, case hardened and manufactured with low tolerances. Chain sprockets and chain



HEKO components for submerged chain conveyors to drain ash from a boiler discharge.

rollers, with replaceable segments of teeth, are sealed for safe use under water.

HEKO's pocket

teeth chain wheels, with toothed rims, are manufactured from special alloy steels and designed for extended

service life.

Chain contact surfaces are machined and the sides are chamfered to ensure a posi-

tive contact with the chain and a good lead into the wheel. Chain contact surfaces are hardened for long service life.

Pocket toothed chain wheels are supplied for use with special attachments - vertical shackle to DIN or TS-shackle and lift-in scraper bars. Replaceable rims have the advantage that the hub can be left in place during refurbishment, which saves maintenance time and reduces costs. Purchasing costs for replacements are also lower compared to the investment in completely new wheels. Dimensions for existing installations are tailored to suit every specific application.

HEKO support idling wheels and snub wheels are alternative solutions to guide rails for horizontal and inclined conveyors. The use of wheels reduces friction and

thus power requirements.

HEKO chain systems with attachments can be supplied pre-assembled (with the chain as endless round strands), thus eliminating the need for on-site assembly. Plug-in scraper attachments type SMO, enable fast connection to endless chain strands with chain locks, making reversible conveying possible.

The HEKO range comprises round steel chains, bucket and scraper attachments, chain wheels, buckets and shafts, as well as complete return and tensioning units. Heat-resistant ring kiln chains for rotary kilns also form part of the range.

BMG's national branch network offers a technical advisory service on correct chain selection, which is a critical factor in power transmission systems.

"Critically insufficient": SA's commitment to fighting climate change lags, but there's hope in hydrogen

THE International Energy Agency – of which South Africa is an association country – recently released its suggestions for curbing global greenhouse gas (GHG) emissions and thus minimising climate change. The report, *Net Zero by 2050 - A Roadmap for the Global Energy Sector*, lays out milestones which must be met by 2050 if we are to limit global warming to just 1,5°C. Startlingly, if every country had the climate action ambition of South Africa's current targets, global warming would reach between 3°C and 4°C. Our current mitigation commitment under the Paris Agreement has been deemed "critically insufficient".

While many countries have pledged to play their part in mitigating climate change, the "gap between rhetoric and action needs to close if we are to have a fighting

chance," says Dr Fatih Birol, Executive Director of the International Energy Agency (IEA). However, the milestones set forth in the roadmap are steep, listing amongst others:

- By 2030 all subcritical coal-fired power plants must be phased out.
- By 2050, global coal use is 90% lower than in 2020.
- CO₂ emissions need to reach 45% less than 2010 levels.
- In a mineral-rich country where the mining industry is critical to our economy, the question must be asked: How can we feasibly work towards these milestones without severe economic strain?

Bryce McCall, part of UCT's Energy Systems Research Group, tells



Bryce McCall.

CBN that South Africa could phase out coal by 2040 without too much impact on the economy in the long term. "However, this would need to be managed very well to avoid impact on the communities which rely heavily on coal mines and power stations for their livelihoods," he adds. McCall and his fellow researchers have identified that future supply will come primarily from wind and

solar PV, with just 4% reduction of total GDP by 2050. For other GHG-emitting industries other than the energy sector, McCall reports that hydrogen offers potential for decarbonised operations as chemical feedstock, and fuel.

"SASOL has already started talking about the possibility of using 'green' hydrogen for some of their processes. Steel industries world-



Barry Bredenkamp.

wide are looking at hydrogen as well. There are already industrial R&D and pilot demos happening, and a lot of money flowing into hydrogen development." He adds that hydrogen can also be used to power heavy duty vehicles, where battery storage technology is currently insufficient.

"A Net Zero South Africa is certainly possible and will involve changes in all sectors.

The path to Net Zero will need to have cross-sectoral collaboration to make it easier and profitable for those sectors which are facing tougher transition challenges," says McCall.

Key in promoting a greener economy is the South African National Energy Development Institute (SANEDI), an agency of the Department of Minerals Resources and Energy. The institute promotes a Just Energy Transition (JET) which is both sustainable and economically inclusive. SANEDI's Barry Bredenkamp told CBN, "The socio-economic situation in South Africa brings with it a number of challenges, but also a lot of opportunities. That is why the emphasis placed on JET in South Africa is so important. The 'new' opportunities brought about by a transition to newer, more modern and clean tech-

nologies provide with it the opportunity to introduce many more 'new' skills into the economy. This will go a long way in reducing the high unemployment levels, especially amongst the youth, and that in itself will get the economy moving in the right direction. Examples include the envisaged growth in the Hydrogen Economy, which will require a number of 'new' skills in manufacturing, maintenance, installation and other areas."

While South Africa's energy sector is the most coal-dependent in the G20, it seems there is hope for a transformed energy sector which is able to balance both the environmental and economic agenda. Due diligence, cautious governance, and inclusive development will be key in achieving this. Now the next question remains – do we trust that this will happen?

Magnet-free electric motor that does not require rare earth elements

By Bob Yirka, Tech Xplore

GERMAN car parts company Mahle is in the process of developing a magnet-free electric motor that does not require rare earth elements. Company reps report that the new motor is efficient and extremely durable.

As many of the big-name carmakers begin switching from gasoline-powered vehicles to those that run on electric motors, the issue of rare earth metals has taken on added urgency—China produces approximately 90 percent of the rare earth metals used in electric motors, and China is the only country that cur-

rently has the processing capacity to handle them in mass quantities. This situation has forced car makers around the world to rely on Chinese suppliers, making them nervous.

In response, carmakers and other entities have begun looking into developing electric motors that do not require magnets,

which in turn means they will not need rare earth metals. Most of those developed thus far have relied on rotating contact devices that transfer electricity to copper coils in a rotor. The new motor by the team at Mahle has done away with these contacts, making the motor both more efficient and more durable since it

has removed one of the stress points. The new motor instead uses powered coils in its rotor, transferring power to the spinning rotors using induction, which means they never have to touch and that the motor has no surfaces that will wear out.

Officials with Mahle note that the motor will be less expensive

to produce without the rare earth metals. They also note that the design allows for tuning and changing rotor parameters, which in turn allows for improving efficiency. During testing, they found the design was 95% efficient, which they note has to date only been achieved by Formula E race cars.

They further note that the increased efficiencies can be achieved at different speeds, which would help car batteries last longer. They expect mass production of the new motor to begin in approximately two and a half years, which suggests the company has already forged a partnership with an as yet unknown automaker.

Crane company overcomes car plant deadline

HP Cranes Consulting, the Brakpan-based company specialising in tower and gantry cranes, has won the much anticipated contract to supply coil-handling machines to a new South African vehicle plant, relying on the design expertise and robust product of Condra to achieve the win.

The order is for eight cranes: four 35/10-ton 22,5-metre-span machines, and a further four with capacities of 20 tons and spans of 13,5 metres, all of them designed in double-girder overhead-travelling configuration.

Condra designed the coil-handling cranes to be equipped with special hooks fitted to the hoists' standard DIN15401 type. After commissioning, they will unload, stack and

position on demand the multiple steel coils delivered in bulk to the vehicle plant. Integral load cells will check and verify the weight and quantity of each coil received.

Besides digital load cell read-outs, all eight will be fitted with card access and data-logging control, anti-sway technology, full-length walkways, remote control, lights, limit switches and multiple general-purpose plug points.

Particularly noteworthy is the anti-sway technology. Configured to maximise productivity, this technology marries variable drives to algorithms that control acceleration and deceleration across all planes, preventing any swinging of the load during crane movement.

Additionally, card access and data log-



A Condra overhead crane (yellow), similar in overall design to the cranes being manufactured for the new vehicle plant, seen here under test in the Johannesburg factory.

ging will aid efficient maintenance and serve as an incentive for operators to adhere to machine operating limits. The logs identify specific causes of breakdown in the event of accidental operational misuse, and

indicate areas where operator retraining is advisable.

For Condra, the order won by HP Cranes Consulting represents approximately four months of work for the company's Johannesburg

factory, a useful order to add to an already substantial book. The contract additionally complements a second contract for two further 40-metre-span cranes ordered by the tyre manufacturer earmarked to equip wheels

fitted to the plant's completed vehicles.

The eight cranes for HP Consulting are all class 3m/M6 heavy duty machines suitable for very high workload. They are quick and nimble units despite their large size, and will attain speeds of 40 metres per minute on the long-travel, and 30 or 20 metres per minute respectively on the 35/10-ton and 20-ton machines.

During the design phase, Condra paid special attention to limiting the recommended spare parts holding for maintenance. Besides easy interchangeability of parts within the two sets of four identical cranes, the crabs of the 40-ton machines are designed to be interchangeable with the 20-tonners' long-trav-

els, further reducing mandatory minimum spare parts stocks.

A final interesting aspect of this order is the intense competition that had to be overcome by HP Cranes Consulting in order to win the contract. All Condra's main rivals submitted tenders, but Condra's technically sound design – and especially its ability to meet the very tight deadline of initial crane deliveries by the end of May – won through.

Industry opinion is that the losing tenders could not meet this deadline because of the necessity to import product. However, Condra manufactures all components locally, and because of this regularly wins orders with tight delivery schedules.

Fleet renewal huge benefit for customers

RAND-Air – an established supplier in the field of air, nitrogen, power, flow (pumps), steam boiler and lighting solutions, and part of the global Atlas Copco Specialty Rental division, pursues a policy of constant fleet renewal to ensure customers receive the best fit possible: the right fleet, at the right time and at the right price.

“Continuous fleet renewal is imperative, as this practice enables Rand-Air to retain and effectively manage a constantly updated fleet of equipment – featuring the latest world-class technologies, improved lifespans, efficiencies, reduced environmental impacts and increased user-friendliness. Such a fleet reflects our ethos and tagline of ‘making agility count’ for our customers, by ensuring lower operating costs, efficient pro-

duction and sustainable profitability. This ultimately contributes to our customers' business sustainability and, in a greater sense, to an improved economic outlook and business positivity,” says Rand-Air Sales and Marketing Manager Byrone Thorne.

“With 48 years' experience in providing the best products and solutions to meet customers' needs, Rand-Air continues to remain aligned with the latest, premium technologies to provide the best fleet for our customers,” Thorne explains.

Rand-Air Fleet Operations Manager Craig Swart agrees: “Accordingly, we offer a ‘360 degree’ complete product offering, with an extensive fleet comprising nitrogen generators, pumps, electric power and diesel powered compressed air and power accessories, air dryers,



generators, lighting towers, compressors and more,” he says.

“Rand-Air will take key factors into consideration, such as the size, age and reliability of the fleet. These elements are taken into account when it comes to meeting the changing needs of the customers, their desired applications and – importantly – their need for safety, quality,

reliability and availability,” Swart explains.

“As we aim to guarantee these elements are all in place, to ensure our customers' operations to perform at their best, Rand-Air's fleet has to reflect these commitments,” he emphasises.

Rand-Air has not only been investing in new opportunities, such as nitrogen, steam and pumps solutions

recently. The company has also added high-pressure and specialised equipment, such as the robust Atlas Copco DrillAir Y1260 variable high pressure (21 to 35 bar) compressors.

These compressors are appropriate for applications in the mining sector, including mineral exploration drilling, geothermal drilling, construction

and blast hole drilling.

Meanwhile, with the industry move to more environmental-friendly, user-friendly (plug-and-play) machines which are cost-efficient and provide reliable uptime for increased productivity, Rand-Air has a concerted focus on driving the introduction and use of more electric-powered equipment.

Products included in Rand-Air's fleet renewal investment are the Atlas Copco oil-injected electric compressors, as well as oil-free electric compressors – the latter of which, following increased demand, has gained substantial traction in the market, Swart says.

“Nevertheless, demand for diesel-driven equipment remains as these products are preferred in certain industries; or in operations that are remotely-located and lack easily available

and reliable electricity connections,” Thorne points out.

“As each product has its ideal applications and therefore place, a salient fleet renewal investment feature encompasses the inclusion of units designed and manufactured according to the highest specifications – with features such as aftercoolers, shutdown valves, over-speed engines, VSDs; as well as smart-managed connectivity for remote monitoring and analysis capabilities,” Swart explains.

Having the latest technology of a renewed fleet enables Rand-Air's 24/7 service technicians to service the fleet faster, frees up time for repairs during breakdowns, enabling predictive maintenance which results in a heightened quality assurance.

SAIV calls on government to fast-track infrastructure development amid brain drain and economic threat

THE South African government has long hailed infrastructure development as a prominent tool for economic recovery, especially in the context of the coronavirus pandemic. However, the Economic Recovery and Reconstruction Plan announced in October 2020 – which includes ambitious infrastructure targets – has yet to be meaningfully actioned. The South African Institute of Valuers (SAIV) president, Malusi Mthuli has highlighted the many dire knock-on

effects of stalled infrastructure development in the country.

“When infrastructure projects are lacking, the property valuation profession suffers – as well as the wider South African community,” explains Mthuli. “Professional valuation skills are scarce as it is. This small talent pool becomes ever smaller as experienced valuers choose to leave the country due to lack of local infrastructure development. When projects are put on hold

– such as the Gautrain extension – valuers seek opportunities in places where projects are more likely to progress. They go abroad and this ultimately means that when projects are finally back on track in South Africa, we will be left without the technical skills capacity to move forward with them.”

The SAIV wants to see the government place more focus on tangible infrastructure projects which will help revitalise many aspects of the property develop-

ment supply chain. “As it stands today, there is a worrying trend in the property development space, where the government is passing on infrastructure costs to developers,” Mthuli says. He explains, “It has become the case that if you want to build a new housing estate, for example, it is up to the developers to bear the cost of upgrading the surrounding roads, water, sewage systems, etc. This shouldn't be the case; our people pay rates and taxes which

should be used for this kind of work. Yet the reality is that the municipalities are gaining a double benefit at the cost of the developer, who ultimately passes those costs down to the end user – the South African people. This results in inflated property prices.”

Developing the valuations profession

In addition to lobbying for infrastructure development, the SAIV has called

on the South African Council for the Property Valuers Profession (SACPVP) to further accredit and develop more academic programmes in order to encourage people to join the profession. “From high school and university level, the valuation profession needs to be promoted and made more accessible. Valuers play a critical role in the economy, and work must be done to develop the valuations industry and the

related skills,” comments Mthuli.

A further tool for the development of the industry would be reservation of work, through the Competition Commission, which could ensure that only registered valuers can undertake valuation work, and no other built environment professionals. “This would secure a steady scope of work for valuers and help ensure that properties are valued appropriately and in line with market developments,” explains Mthuli.

'Vegan spider silk' provides sustainable alternative to single-use plastics

By University of Cambridge

RESEARCHERS have created a plant-based, sustainable, scalable material that could replace single-use plastics in many consumer products.

The researchers, from the University of Cambridge, created a polymer film by mimicking the properties of spider silk, one of the strongest materials in nature. The new material is as strong as many common plastics in use today and could replace plastic in many common household products.

The material was created using a new approach for assembling plant proteins into materials which mimic silk on a molecular level. The energy-efficient method, which uses sustainable ingredients, results in a plas-

tic-like free-standing film, which can be made at industrial scale. Non-fading «structural» colour can be added to the polymer, and it can also be used to make water-resistant coatings.

The material is home compostable, whereas other types of bioplastics require industrial composting facilities to degrade. In addition, the Cambridge-developed material requires no chemical modifications to its natural building blocks, so that it can safely degrade in most natural environments.

The new product will be commercialized by Xampla, a University of Cambridge spin-out company developing replacements for single-use plastic and microplastics. The company will introduce a range of single-use sachets and capsules later this year, which can replace the plastic used in everyday products like dish-

washer tablets and laundry detergent capsules. The results are reported in the journal *Nature Communications*.

For many years, Professor Tuomas Knowles in Cambridge's Yusuf Hamied Department of Chemistry has been researching the behavior of proteins. Much of his research has been focused on what happens when proteins misfold or 'misbehave', and how this relates to health and human disease, primarily Alzheimer's disease.

"We normally investigate how functional protein interactions allow us to stay healthy and how irregular interactions are implicated in Alzheimer's disease," said Knowles, who led the current research. "It was a surprise to find our research could also address a big problem in sustainability: that of plastic pollution."

From coal to hydrogen: rail back in fashion

IN the early twentieth century rail was a dirty business, burning coal and competing with other transport on the basis of speed, price and luxury. Pollution wasn't a factor.

French train builder Alstom produced steam engines in the 1920s and in due course replaced them with diesel. As train travel faced stiffer competition from cars and cheap air travel, Alstom diversified into energy and ship-building.

Today, trains are enjoying a revival. Travellers appreciate their comfort and speed. The industry promises to be more profitable. But that's only half the story.

Nicholette MacDonald-Brown, Head of European Blend Equities, explains: "Alstom is a business that's changed its spots. It sold its troubled energy business in 2015 and has settled down as a focused railway business. Today it looks set to benefit from plans to promote rail as a sustainable and safe mode of transport. There are two strands to this positive. One



Alstom's Coradia iLint, the world's first hydrogen powered train.

is that train technology is itself becoming far cleaner and more efficient. But the other part of the story is that more people and more freight are finding their way onto railways instead of using dirtier and more costly alternative transports."

Overall demand for the shipment of people and goods globally is expected to rocket in the coming decades. Train travel will benefit. And tracks are being laid at breakneck speed to meet that demand. In China, more high-speed railways were built in a decade than exist in the whole of Western Europe. New lines are

being laid in Africa and the US, too.

Nicholette says: "Rail has the lowest carbon footprint amongst all major means of transport – rail travel has only an eighth of the carbon footprint of air travel and a third of road. As governments and companies live up to their emission-reduction targets, rail should benefit."

She continues: "Surprisingly, even airlines are encouraging customers to shift some of their travel to rail. KLM for example announced in 2019 that it wanted to encourage passengers to 'make responsible decisions

about flying'."

Technology has been advancing too. Alstom has developed hydrogen-powered trains, which release only water as exhaust. They are already operating in Germany and other countries.

"Alstom's Coradia iLint, the world's first hydrogen powered train, can run for 600 miles on a single tank," Nicholette says.

"In the face of the climate crisis, demand for decarbonisation across transport is rapidly accelerating. Alstom is in a good place to benefit financially as these trends grow. And the environment benefits too."

Special training course on concrete industrial floors



CEMENT & Concrete SA's School of Concrete Technology will on August 21 present an online training course on industrial concrete floors – surfaces that are essential for South Africa's industrial growth but often pose major problems for the construction industry, says John Roxburgh, senior lecturer at the School of Concrete Technology.

To help educate those involved with concrete floors in all corners of SA, the School will present

the one-day online Zoom course, 'Industrial floors on the ground' lectured by CCSA CEO, Bryan Perrie, an internationally recognised expert on concrete floors, in which all the design principles and concrete practice needed to produce a quality floor are covered. The course – which also includes floor repair and maintenance – is aimed at engineers, contractors, concrete specialists, floor coating applicators, managers of warehouses and all others

involved with industrial floors.

Roxburgh says without well-designed, fit-for-purpose and low maintenance concrete industrial floors, factories, warehouses, storage and retail areas and other hard-standing areas cannot operate at optimum efficiency.

For more information about the online training course on August 21, email rennisha.sewnarain@cemcon-sa.org.za, phone 011 315 0300, or visit www.cemcon-sa.org.za.

Moving towards the vision of economic recovery

FOLLOWING robust discussions held recently online during the two-day Western Cape Property Development's "Vision for Growth" annual conference (20 to 21 May), a number of key points have emerged that will be critical to the future of the property development and construction industries as it recovers not only from a number of difficult years, but from the Covid-19 pandemic.

Said Deon van Zyl, chairperson of the Western Cape Property Development Forum (WCPDF): "We must find a way around the stalemates and stand-offs that currently exist between the private and public sectors and find best-practice examples of public-private partnerships to learn from and move forward as quickly as possible."

"Otherwise, we will find not only our industry but the roll out of our country's infrastructure past the point of return."

Reflecting back on the conference, Van Zyl pinpointed four factors that would be key to both economic recovery and the estab-

lishment of a united vision.

Get the "town" to talk

Sharing from his own experience following a period spent in Seattle in the USA, Professor Nick Binedell of the University of Pretoria's Gordon Institute of Business Science, and a keynote speaker at the conference, had spoken about the importance of "town talk". This referred to the crucial engagement between citizens, city officials and in particular politicians in "round table" discussions during which all levels of engagement could begin to understand the challenges of creating a vision from all angles.

Eradicate siloism

A second theme that came through strongly during the two-day event was the culture of what Van Zyl termed as "siloism" – or the tendency for most government departments across all tiers to work in isolation and the urgent need for this is stop, having been identified as among the greatest barriers to

approval of developments – even within the public sector itself.

However, there were instances where the walls had been broken down, not least of which was demonstrated during the conference by Lekha Allopi, Project Executive – Development Planning, eThekweni Municipality.

Give government officials a voice

Complementary to the idea of a "town talk", Van Zyl also felt it was import to create environments where executive government officials were also given an opportunity to speak their mind.

"We seem to have created a culture, certainly in the Western Cape, where only politicians – be that at Provincial or Local Authority level – are allowed to express an opinion. I think it's time to allow the technocrats to tell you their bit, and thereby become accountable to the people who pay their salaries."

His one criticism of the two-day event, noted Van Zyl, revolved around this very point,

with delegates from the public sector making up only 17% of all attendees and politicians 1%. "At least a third of the audience should, in fact, be politicians – here to listen."

Continue to unite and bring labour to the table

Van Zyl also expressed his excitement about the fact that industry was starting to unite beyond structures created by Government for its own purposes. The WCPDF, for example had been a founding member of the Construction Alliance South Africa (CASA), which united 33 industry bodies into a single voice under the leadership of John Mathews, immediate past President of Master Builders South Africa and currently the CEO of Western Cape-based Garden Cities.

"Building relationships and friendships in industry are now priorities to get industry's voice heard," stressed Van Zyl. "We can no longer only depend on government-created platforms to be the voice of industry."

Consumables that reduce total cost of ownership

PYROTEC PackMark provides a full range of superior coding and marking consumables that are based on sound research conducted by its principals' chemists. These consumables are specially manufactured to work best with the OEM equipment, ensuring durability and long life spans.

Widespread budget constraints may tempt manufacturers to cut consumable costs by opting for cheaper options. However, for coding and marking, choosing cheap options over those that are tried, tested and specifically designed will cost more in the long run.

According to Brandon Pearce, Pyrotec PackMark's General Manager, 'Although manufacturers may save money initially, the harmful effect these consumables have on expensive printer parts will cost more money in the long term.' He warns customers not to abandon the slightly more expensive official consumables for less expensive 'grey' options.

To assist customers with reducing their total cost of ownership (TCO), Pyrotec PackMark offers an extensive range of consumables for marking and coding all types of primary and secondary packaging. Features of Pyrotec



PackMark's consumables include:

Performance and reliability

Products that are extensively tested to ensure optimal performance. The entire process, from initial formulation and manufacturing to end-users is carefully monitored.

Flexibility

Depending on the application, Pyrotec PackMark's principals provide varying technologies using consumables that range from ketone/alcohol/water-based inks and Touch Dry® Hot Melt inks to thermal transfer ribbons. Within each technology, there's an array of options customers can choose from to meet their branding requirements.

Regulation compliance

Genuine consumables provided by Pyrotec PackMark's principals

comply with industry-specific regulations such as food grade, RoHS, and many others.

Efficiency

On-site application and chemistry support helps customers to pair the correct consumables with the right printer. This means that every application is optimised for customers' processes.

Safety

Every production site is compliant with the best local practices and safety standards, and transportation and manufacturing processes are all ISO 9001 and ISO 14001 certified. Additionally, packaging ergonomics are designed to enhance operator safety.

Storage

Pyrotec PackMark has hazardous substance warehouses in Cape Town and Johannesburg.

Minister's steel "Master" plan, a 'disaster' plan

By Gerhard Papenfus, Chief Executive of the National Employers' Association of South Africa (NEASA).

DURING early 2020, Ebrahim Patel, Minister of Trade, Industry and Competition, announced in a meeting with industry-role players, which included NEASA and AMSA, that Government will follow a process of consultation and thereafter propose a Steel Master Plan based on consensus.

NEASA wholeheartedly expressed its support for the process.

However, much to our surprise, more duties were imposed a few months later and AMSA lodged a further application for a 120% duty on certain long products, as well as on nine new tariff codes of coated products - which AMSA does not even manufacture.

NEASA, at the time, wrote an urgent letter to Minister Patel pro-

testing that there was no consultation with industry and that the one-sided action to further protect AMSA, does not reflect the spirit of consultation that was announced by the Minister a few months earlier.

NEASA also published an open letter in which it criticised the fact that the salary of the author of the first proposed Steel Master Plan, was funded by AMSA. The author's name was quickly removed from the document, but the content remained fundamentally unchanged.

NEASA also complained about a proposal within the plan that SEIFSA will administrate a fund that, inter alia, would force South Africa's SOE's to buy AMSA's steel, irrespective of it being more expensive. SEIFSA's name was consequently removed.

Furthermore, NEASA requested the Minister to meet with ten independent industrialists who were

fiercely upset about the new duties and the one-sided approach of Government. The Minister, however, simply ignored the request and carried on having discussions with a few handpicked role players, most of which the majority supports the duties - since they have vested interests.

A few years back, the Minister appointed NEASA on the Steel Pricing Committee, but NEASA soon withdrew after realising that it was nothing else than window-dressing. The body that was supposed to police AMSA's pricing, was bending backwards to accommodate AMSA.

In respect of the Steel Master Plan, it was no different; the whole process of consultation was a farce. The final Steel Master Plan, which will be signed by the Minister and the said few handpicked industrialists, including AMSA, primarily still reflects the first proposal authored by

someone being paid by AMSA.

The mass discontent with the status quo and the surveys that show that almost 100 percent of steel companies do not support the duties, were simply ignored.

The Steel Master Plan is the result of Minister Patel's idea of socialist control of an industry's affairs, not according to market forces, but according to the Minister's idea of how an industry should be run.

Keep in mind that the Minister is a communist (he is indeed a member of the Communist Party) and an ex-trade unionist, a Minister of Trade and Industry who, unbelievably, has not conducted a business in all his life. In fact, in terms of his trade union background and communist ideology, he has neither any understanding nor sympathy for the inner workings of business in general and, in this case, the steel industry in particular.

It's an ill wind...

MINING is one of Africa's most important industries. It has contributed significantly to economic growth, has been instrumental in the development of infrastructure and is a major driver for improved socioeconomic indicators across the continent. With its business model dependent on global supply chains and confined working spaces, one would think the mining industry to be a perfect victim of the COVID-19 pandemic. However, within 6 months of operational disruptions, the African mining industry proved to be relatively resilient, with mining companies enjoying increased gains as platinum basket prices climbed and investors turning to gold as a safe investment.

During the height of the pandemic (March 2020), the worst hit mining commodities included diamonds and platinum group metal (PGM) outputs from South Africa. South Africa was an exception to the remainder of the African continent as most African governments avoided imposing strict restrictions on their production operations and their supply chains due to the industry's economic importance.

However, with the easing of lockdown restrictions, diamonds and PGM production levels soon increased by May 2020. Meanwhile, in both the Congo (DRC) and Zambia, copper and cobalt operations rebounded significantly as commodity prices rapidly recovered after the initial fall in March 2020.

"Kenya has unveiled plans to establish a gold refinery to formalize the nascent sector."

Gold producers in West Africa benefited from higher gold prices and boosted royalties. These elevated gold prices also benefited Tanzania, causing an increase in their mining revenues to an historical high.

Given the sector's size and resilience, numerous African governments have set in place recovery plans to ensure that the industry is not hindered in the future. For example, in Nigeria, the President has backed a reform of the mining sector to kick start both artisanal and industrial gold production. While in Angola, the government has given incentives to diversifi-

cation plans to attract investment in prospective diamond, gold and iron ore deposits, while Kenya has unveiled plans to establish a gold refinery to formalize the nascent sector. In South Africa, a recovery plan was put in place to ensure that mining remains a top priority. This included the potential increase of South Africa's global share of exploration expenditure from the current 1% to 3%, a boost in investor confidence by making plans to simplify mining regulations and fast-track approvals so that mining and environmental permits are granted faster.

Since June 2020, the South African mining industry has indicated its resilience and capability to strengthen the South Africa economy. This was evidenced by the 4% total revenue growth in the industry for the year that ended 30 June 2020. Driving commodities behind this growth were the PGMs; gold as well as iron ore, which saw an increase in revenue for the 12-month period. As the industry continued to strengthen, the mining industry contributed to driving a 1.1% growth in the South African economy during the first quarter of 2021. This translated into an

annualised growth rate of 4.6% whereby the mining industry grew by 18.1% and contributed 1.2% points to GDP growth.

Despite a drop of 15.5% in PGM production in 2020, PGM sales increased by 40% due to higher prices. Furthermore, the PGM sector is the largest contributor to mining in terms of sales. However, coal is the most significant component of mining in terms of value added. For the first time in the last decade, PGM sales overtook those of coal to become the most significant contributor to total mining-industry sales, reaching R190 billion in 2020. This was more than the value of iron ore and gold sales combined. (Source: StatsSA)

The pandemic highlighted the importance and the key role the mining sector plays in economic recovery and the absolute need to 'build back better'. Furthermore, the pandemic highlighted the need to put measures in place such as increased automation and technological advancements to ensure that mines remain undisturbed during global disruptions.

Article by Yaa Agyare-Dwomoh (Consultant: Frost & Sullivan Africa)

Creecy urged to integrate biogas into climate plans

THE South African Biogas Association (SABIA) and the World Biogas Association (WBA) have sent a joint letter to the South African Minister of Environment, Forestry and Fisheries, Barbara Creecy, urging her to help integrate biogas and its environmental benefits into the country's plans to deliver on their Paris Agreement commitment and address the climate emergency.

Biogas does not currently feature in the South African NDC. In their letter, SABIA and WBA emphasise the value of the anaerobic digestion and biogas industries in delivering significant GHGs reduction and other environmental benefits:

"All organic wastes when left to rot in the

open air, release methane into the atmosphere" the letter says. "These emissions however can be avoided when these wastes are recycled to produce biogas, which is a storable flexible green gas, along with a rich-nutrient bio-fertiliser, digestate. The biogas industry can therefore greatly contribute to South Africa's transition away from coal and increase its energy independence, while also restoring the country's soil health and displacing fossil fuel derived fertilisers."

In addition to the NDC, "Biogas should play a key role in the implementation of South Africa's Integrated Resource Plan", the letter continues, "as it can be upgraded to biomethane, a sustainable gas which acts as a direct

substitute for fossil natural gas". The letter then quotes the recent IEA Biogas and Biomethane report that finds that the world's biogas and biomethane resources alone could cover 20% of global gas demand.

Charlotte Morton, Chief Executive of WBA, added: "By integrating biogas into its plans, South Africa can lead the way in demonstrating how this industry can significantly help address this shortfall and contribute towards creating a circular, sustainable and environmentally-friendly economy in their country."

WBA has published Biogas: Pathways to 2030, detailing how the industry could deliver 10% reductions in GHG emissions by 2030 across multiple sectors.

Ladies endorse air

FOUNDED in 2015, Kenra Holdings Pty Ltd is a 100% black woman-owned, Level 1 BBBEE company that specialises in the rental of compressors, generators, tower lights/ lighting plant, diesel bowsers and related services to various sectors such as construction, mining, industrial and state-owned enterprises. Expert solutions along with service excellence have propelled Kenra Holdings into an established name in the air and energy rental sector in South Africa. With 20 years' rental industry expertise, Karen Kasavaloo, MD of Kenra Holdings, has amassed the necessary knowledge of finding fitting and expert solutions for her clients. Her passion and dedication for service excellence sets her apart from her competitors. She believes that the key to unlocking value for all her customers is her relentless focus on providing cost-effective and reliable solutions that empower her customers to achieve maximum work output on site.

It is for this reason that Kenra Holdings has chosen Goscor Compressed Air Sys-

tems as its preferred supplier for compressors in the past 18 months. Most of Kenra Holdings' clients use small power tools such as paving breakers, chipping hammers and rock drills. To meet its needs, Kenra Holdings opted for the Sullair 185, a portable rotary screw air compressor that produces 5,2 m³/min @ 6,8 bar (185 cfm @ 100 psi).

"Most of our clients use multiple power tools on site, and for these portables we push performance at all costs, and the Sullair 185 comes best at all times," declares Kasavaloo. "These compressors give our customers the ease of operating their power tools with maximum power, uptime and efficiency."

According to Kasavaloo, fuel consumption is a major aspect in keeping operational costs down and "there is no doubt that the Sullair 185 is one of the best in the country when compared to other brands in this size category". Apart from its superior fuel efficiency, the unit is designed to offer the same durability, manoeuvrability and simple serviceability the brand is known for.

"The Sullair 185 compressor is synonymous with reliability and performance and our customers enjoy a product that works efficiently all the time in all conditions," says Kasavaloo.

For Kasavaloo, uptime is a key parameter in the compressed air rental game. When an air compressor stops working, every minute production is down creates a loss of money and time, and increases stress and frustration. To reduce the risk of financial and productivity loss for its customers, Kenra Holdings opted for Goscor Compressed Air due to its proven service and support regime that Kasavaloo believes to be unparalleled in the compressed air market.

"What sets Goscor Compressed Air Systems apart is their aftersales service. Compressed air is critical for our customers, and so is the uptime for our equipment. Fast action and the highest levels of responsiveness and reliability are therefore essential in this game, and this is where, by no doubt, Goscor Compressed Air Systems excels," concludes Kasavaloo.

Free online vocational training platform

TRACE Academia is a free online vocational training platform built for young South Africans looking to build their skills to find or create jobs. Created in response to the high rate of youth unemployment in South Africa and the continent, Trace Academia will focus on empowerment through educating and training young people.

More than 50% of Africa's population is under 25 years old. The youth are struggling with the effects of a longstanding economic and psychological crisis. The reach of the global pandemic has further accelerated the need for new approaches to education.

Trace Academia courses are created in collaboration with leading companies, institutions and experts to ensure that the skills provided are well matched to market needs.

A localised, interactive and entertaining course format keeps the learner's attention and

significantly improves course completion rate.

Trace Academia will primarily target young South Africans in its inaugural year. The platform will launch with several locally produced training courses including Get Started with Digital Marketing (Grow with Google), How to Become a DJ (Trace), Spark your Interest in Electricity (Schneider Electric), Become a Successful Entrepreneur (Valued Citizens & UJ), Become a Real Handyman (Leroy Merlin) and Own Your Situation (Durex). Trace Academia will take the learner through the journey towards skill acquisition.

The Trace Academia platform will offer:

- Vocational Training
- Entrepreneurial courses
- Soft Skill and Well Being courses
- Social Learning Features
- Job Information **Learning Engage-**

ment - Engaging content keeps the learners' attention and maximises completion

Testing and Certification - Course certified by industry leaders providing credibility and applicability

Employment Opportunities - Learners are connected to an ecosystem of employment enablers

With the mammoth goal of training over 25 million youths by 2025, Trace Academia aims to develop hundreds of courses to help empower these young people to become employable or become employers.

Part of the launch centred on the signing of a protocol of cooperation between the Agence Française de Développement (AFD), Senghor University in Egypt and Trace to establish a partnership to support the development and professionalization of the cultural and creative sector in Africa through the Trace

Academia programme. AFD's financing of EUR650k will cover a training course dedicated to understanding the challenges of the sector and providing workable solutions. The learning content of the training is to be developed through this partnership between Senghor University in Egypt, Trace and Campus AFD, AFD's training centre.

Due to the high youth unemployment rate in South Africa, it was important for Trace to introduce the Trace Academia project as a getaway to Trace's mission of entertaining and empowering young people to stand up and shine.

Trace Academia is set to be launched in the rest of the world by the end of this year, with more courses to be produced with leading companies, institutions and experts globally.

The Trace Academia application can be downloaded on the Apple App store and Google Play store.

We need answers for when and why self-help is against the law

By Jacques Moolman, President of the Cape Chamber of Commerce & Industry.

IT was inevitable, given the appalling mismanagement of so many local municipalities up and down the country, that ratepayers would decide to get together to fix potholes and even fix failing water and sewerage systems.

What flies in the face of common sense, public health, and general safety, is the reaction of municipal officials and their erstwhile elected bosses who have taken to the courts to re-take control of the (now once more functioning) utilities.

It is a general principle of human interaction that if you do not get what you pay for, the law will be on your side. This is not the case when ratepayers find the services they pay for are not delivered – things like fresh, clean water, regular electricity, and an

efficient and healthy sewerage disposal system.

In the town of Koster, for example, when ratepayers took over the town's waterworks when they broke down, and then disputed the council's right of having another go, so to speak, they were taken to court and lost.

What followed this extraordinary yet lawful decision was some eye-opening statements made to the media by the North West MEC for Cooperative Governance, Human Settlements and Traditional Affairs, Mmoloki Cwaile, who said, "We cannot allow a situation where the infrastructure is managed and controlled by private people".

If that was not enough to discourage anyone from daring to get a utility back online when it has collapsed, he went on to say, "We can't allow the safety of the com-

munity of Kgetlengrivier compromised by having the plants controlled by unauthorized people".

Quite so, but what to do about the safety of a community when those who accept money for rates, electricity, and water, fail to do the job they are paid for?

The Courts have yet to decide on ratepayer rights in such a situation. Instead, what caused the ratepayers of Kgetlengrivier to volunteer to help fix the water supply seems to have been ignored and instead of receiving praise, they have been punished.

The dispute in this municipality is rather more complicated and involves non-payment for work done, but from a common-sense point of view, it appears to be a case of forcing those who fixed the broken waterworks to give it back to those who broke it.

We need answers for when and why self-help is against the law.

Major retailer joins PolySA PRO

PICK N PAY has signed up as a member of Polystyrene Association of South Africa (PolySA) – the Extended Producer Responsibility Organisation (PRO) focused on promoting recycling of polystyrene and creating a positive environmental outlook for this versatile packaging material in South Africa.

Adri Spangenberg, PolySA's CEO,

extended a warm welcome to Pick n Pay and applauded its decision to comply with the new Section 18 EPR legislation that makes it compulsory for all producers, converters, brand owners, retailers and importers of packaging to either belong to a PRO or to have formed their own independent EPR scheme. Over the past several months, Poly SA has been making concerted efforts to

encourage brand owners, retailers and other role-players across the entire value chain to sign up to the PRO in order to demonstrate their commitment to Extended Producer Responsibility. Apart from Pick n Pay, the Association has also recently welcomed industry stalwarts Goldpack, Pakeks and Plaslantic as new members.

Commenting on their motivation for joining PolySA, Pick n Pay Sustainability General Manager, Andre Nel, explains that supporting the various PRO's operating in the country's packaging landscape is an important step towards long-term sustainable change and supporting a true circular waste economy.

"As one of SA's leading retailers, we are committed to reducing our impact on the envi-

ronment and encourage our suppliers and customers to join us on this journey. The more we work together to reduce the amount of waste that is sent to landfill and develop new end-markets for recycled material, the greater the difference we can make. For this reason, we wanted to show our support for PolySA, who for the past 12 years have been focused on establishing and growing the polystyrene recycling industry in the country," Nel says.

"Our goal is to minimize the environmental impact of post-consumer and post-industrial polystyrene through the effective collection and recycling all packaging polystyrene by means of our various recycling projects. We are also increasingly fulfilling the role of a facilitator between the

recyclers and suppliers of recycled polystyrene and the buyers representing the various end-markets. This has allowed us to achieve impressive results and managed to grow the recycling rate of polystyrene in South Africa year by year. We applaud the big step taken by brand owners and retailers such as Pick n Pay whose membership help to support our recycling and collection efforts through an annual levy or by financially supporting one of our many Enterprise Development and Corporate Social Investment Projects that are aimed at job creation, empowerment and improving the lives of the less fortunate. Together, we are creating lasting change for our industry, our country and the environment for generations to come!" Adri concludes.

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Water reuse explained

IT is no secret that our attitude towards water has changed drastically in the last few years. What used to be seen as an inexhaustible natural resource is now a scarce commodity.

“By 2025, most countries in Africa will face severe water scarcity, due to increasing population and demands on water,” the United Nations Environment Programme predicts.

There has never been a greater need for alternative water supplies. Water Purification Solutions (WPS) believe that water reuse is paramount in combatting water scarcity in Africa.

Water reuse (also commonly known as water recycling or water reclamation) reclaims water from a variety of sources, treats it, and reuses it for beneficial pur-

poses. Water reuse can provide alternatives to existing water supplies and can be used to enhance water security, sustainability, and resilience.

Sources of reusable water

Sources of water for potential reuse can include municipal sewage water, industrial effluent, stormwater, and agriculture runoff. These sources of water can all be treated to meet fit-for-purpose specifications for a particular beneficial use such as irrigation, potable water supplies, and industrial processes.

Municipal sewage

Treating sewage for reuse is a complex process. The sewage must undergo chemi-

cal, physical and biological procedures to ensure the removal of all contaminants. This requires specialty water treatment that includes advanced technologies such as flocculation, disc filtration, ultrafiltration and reverse osmosis.

Industrial effluent

Effluent can be treated for reuse across almost all industries, including, for example, agriculture, food and beverage, metal finishing, plastic manufacturing, and textile.

With any effluent treatment, one of the main challenges is that there is a multitude of influents, resulting in the effluent that requires treatment being of a significantly complex nature.

Influents in a metal finishing factory, for

instance, can stem from acid wash, alkaline wash and zinc bath processes. These result in fluctuating levels of pH and metal concentrations.

Stormwater

Stormwater is rainwater that runs off land and moves away from the area where it originally falls. It can soak into the soil, be stored on land in ponds and puddles, evaporate, or contribute to surface runoff.

The treatment of stormwater for reuse enables this water to be reused for a variety of applications including irrigation, water flushing, toilet water, and cooling tower feed-water.

Technologies for water reuse

Disc Filtration

Disc filtration offers depth filtration where the particles to be filtered are trapped

between discs and filtered water continues through to the next stage of treatment.

A differentiating factor between various disc filter manufacturers is not only the type of disc assisting with improved filtration but also the cleaning mechanism employed to offer superior backwashing in terms of water and power efficiency.

AZUD is a Spanish water treatment company that develops innovative technologies for water management and its Helix Automatic FT200 AA DLP disc filter performs in-depth 3D filtration, followed by automatic, air assisted (AA) backwashing. Data Loss Prevention (DLP) technology enables the sequential low-pressure backwashing of each filter using a mix of filtered water and compressed air stored in an auxiliary tank, while the filtered water continues to be supplied.



An AZUD disc filtration system.

Membrane technology

Ultrafiltration is a membrane filtration method that is intended for the removal of micro-biological particles. An ultrafiltration filter has a pore size around 0.1 micron. The process of ultrafiltration removes bacteria, microorganisms, larger particles, and some viruses from water.

Moreover, when employing ultrafiltration secondary (coagulation, flocculation, sedimentation) and tertiary filtration (sand filtration and chlorination) often aren't nec-

essary. This is because ultrafiltration, as a type of primary filtration, can stand alone.

Reverse osmosis is a water purification process that uses a partially permeable membrane to separate ions and unwanted molecules from water. After the water passes through a reverse osmosis filter, it is essentially pure water.

Reverse osmosis removes most minerals in the water as well as organic molecules and viruses.

For more information
Email: info@wps.co.za
or Tel: 021 851 2451.

Reducing consumption by using water efficiency in all required processes



WITH the steady growth in global population and the worldwide impact of climate change, there is a rise in demand for the essential and vital natural resource, water. To meet this demand, it is critical that water is treated immediately after use so that it can be available for safe use again.

This requires more sophisticated, more effective processes that must be implemented and carried out simultaneously - as economically as possible.

To overcome these challenges, ifm offers reliable and innovative automation solutions. While always considering current trends and requirements, it searches for the best possible solutions for tomorrow, ensuring that security and future viability are guaranteed in equal measure.

The advantage of automation solutions

Due to the increasing scarcity and value of freshwater resources, it is important to operate plants as effectively as possible along the entire cycle. ifm solutions, comprise hardware and software, ensuring plants operate at Overall Equipment Effectiveness (OEE).

Availability:

The benefit from the added value of digital data communication with IO-Link. Hardware components from the sensor to the IT level, monitors the health status and maintenance requirements of the plant process system at all times, resulting in minimum downtime due to unexpected shutdowns.

Performance:

The more precise the plant data, the more

efficiently can water be treated to the required quality. This requires precise sensor technology, the structures for loss-free digital data transmission via IO-Link and software for a simple, transparent dialogue with the treatment plant.

Quality:

Even the slightest error in water treatment corresponds to the loss of a precious resource. With ifm solutions for continuous quality analysis and for a transparent overview and control of all automation components involved in the process, water quality can be reliably safeguarded over the long term.

For more information contact: ifm South Africa, Tel: 0861 IFM RSA (436 772) International: +27 12 450 0400 Fax: (012) 450-0412, or visit www.ifm.com or E-mail: info.za@ifm.com

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With the steady growth in global population and the worldwide impact of climate change, there is a rise in demand for the essential and vital natural resource, water. To meet this demand, it is critical that water is treated immediately after use so that it can be available for safe use again. This requires more sophisticated, more effective processes that must be implemented and carried out simultaneously as economically as possible.

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Solutions for water, wastewater and sewage

BMG's solutions for the water, wastewater and sewage sectors, encompass the supply of quality branded drive systems, which are enhanced by the BMG team's technical expertise and installation, condition monitoring, maintenance and engineering support capabilities.

"BMG specialists - with technical knowledge and extensive experience in water engineering - play an important role in upgrading ageing water and wastewater facilities and designing new drive systems, to ensure a dependable infrastructure," explains Mr Kelly Mac Iver, Gears Business Unit Manager, BMG ElectroMechanical Division. "The selection of robust equipment, which can endure continuous operation under severe conditions is critical.

"It is also important to prevent unnecessary breakdowns, which is why reliability is our main focus when designing the drive systems for new and upgraded facilities. All BMG components are precisely matched to each other and to application requirements, to ensure high productivity, smooth operation and long service-life. Apart from the supply of new drive systems, the company's broad branch network offers original spares and advanced workshop resources that ensure all repairs to drive components meet pristine OEM standards."

BMG supplies an extensive range of drive packages from NORD DRIVESYSTEMS and Sumitomo Drive Technologies (Hansen, Paramax, Cyclo, HSM helical shaft mounts) which have been designed



Nord sludge tank mixers.

especially for optimum efficiency in harsh applications, including water, wastewater and sewage treatment plants.

Sumitomo's Hansen product range includes gear units that drive aerators, water screws and brush aerators.

The internal construction of the gear unit housing allows for

simple and complete oil drainage, while Hansen's Oil-Lock and Oil-Guard systems offer a maintenance-free sealing on high-speed shaft extensions. The drywell - available on Hansen P4 gear units - prevents oil leakage on vertical down shafts. Larger units, with inspection covers above

the oil level, allow for convenient inspection of internal components on site.

Standard application designs range from 13 kNm to 328 kNm torque capabilities.

BMG's Sumitomo Paramax gear reducers, which are proven in the conveyor and materials handling industry, also

offer the water treatment sector a range of gearboxes.

This range is available as right angle or parallel vertical units, with a 25 degree pressure angle tooth form, that produces stronger gearing. The mechanical oil pump requires no electricity; gears are carburised, heat-treated and finished to the highest standards of accuracy.

"NORD drives consist of gears, motors and brakes that are protected against corrosion. Special covers for the hollow shaft and motor also ensure that the drive is entirely resistant to spray from tanks and the humid and aggressive conditions to which it is exposed in sewage treatment plants," says Deon Crous, National Product Manager, NORD Drive Systems at BMG.

A feature of these drives is the Unicase

gearbox that accommodates all bearing seats within a rigid one-piece casting - no bearing seats are located on bolt-on flanges or covers. Sealing surfaces are not subjected to torque stress or overhung loads and hardened wheel bodies with specially treated teeth, ensure smooth and quiet operation at maximum load capacity.

BMG has made a substantial investment to ensure assembly, stockholdings and technical back-up for its comprehensive range of industrial geared motors. All gearboxes and electric motors are in keeping with international standards. This facility enables the quick delivery of world-class geared motor solutions in selected African countries. Full repair and maintenance services are also offered.

Local innovators tackle groundwater pollution

BN Aqua Solutions and ROC Water Technologies, two companies incubated at The Innovation Hub's Climate Innovation Centre SA business incubator, treat water in local mining sites to provide clean drinking water, contributing to a cleaner environment.

ONE of the environmental issues that South Africa faces is water pollution in and from local mining sites. Statistics show that 118 mines around South Africa are polluting rivers, inadequately testing for contamination or otherwise dirtying

South Africa's waters.

"Water scarcity refers to the lack of fresh water resources available to meet the standard water demand. In South Africa, we have major problems with the supply of clean water for drinking, bathing and

agricultural processes. Finding solutions to the water scarcity problem remains a priority in our country," says advocate Pieter Holl, CEO of The Innovation Hub.

One factor that has contributed to the water scarcity issue has been the dispersing of dust

particles from the mine dumps into surrounding homes and over water sources during the rainy and windy seasons. This dust contains a mixture of chemicals like arsenic and cyanide, which could expose those who use the toxic water to all sorts of health issues,

from brain damage to skin cancers.

Even the religious procedure of baptising makes use of open rivers, dams and lakes. As an example, masses gathered at the Fleurhof dam in Soweto for baptisms, but questions were raised on the safety of the water and whether or not the people being baptised will get water poisoning as the dam is close to a local mining site.

BN Aqua Solutions takes acidic mine water from underground and treats the contaminated water to drinking stage by using a waste product, which is locally available. They have built a prototype model at the CSIR, where they have conducted various tests proving that they can provide clean drinking water.

What makes the project innovative is the use of waste material to treat the contaminated mine water. Not only is the result clean drinking water, but also reduction in waste material. BN Aqua Solutions reduce the environmental footprint currently caused by this unused metallurgical product. "This waste product is a by-product of a metallurgical process, and it has been stockpiled without use," says Boitumelo Nkatlo, Founder of BN Aqua Solutions.

Non-compliant mines have been paying hefty fines instead of

investing in the rehabilitation of the environment. "The operating mines are currently non-compliant to the environmental regulations. We treat contaminated water making the mines compliant whilst producing drinking water at a cheaper rate as we are using a waste product, the excess water can be used by the surrounding low-income communities for irrigation, domestic and agricultural purposes in order to increase our country's food security," says Nkatlo. "We have found a cheaper solution to this problem and can also recover saleable minerals such as gypsum, magnetite and synthetic lime from the residual slag, which can help to off-set the plant operating cost," he adds.

"It is foreseen that mine water can be treated to recover not only drinking water but also pigment, aluminium hydroxide, calcium carbonate, sodium carbonate and elemental sulphur," says Jannie Maree, Founder of ROC Water Technologies.

ROC Water Technologies has designed a ROC (Reverse osmosis/Cooling) process that can treat acid mine water to recover drinking water and saleable products in its various stages. Ferric hydroxide is recovered in the first stage of the ROC process, where sodium

carbonate increases the pH to 3.5. The remaining steps of the ROC process make provision for removing the remaining metals in the water by raising the pH to 7.5, followed by recovery of drinking water and a brine stream through reverse osmosis.

"Protection of the environment in a cost-effective way is the main focus of ROC Water Technologies. The focus is not economic growth OR the environment but economic growth AND the Environment," says Maree. "We aim to implement innovative technical solutions that provide cost-effective solutions for waste streams through recovery and selling of products that are needed in the market," he adds.

"We believe that companies such as BN Aqua Solutions and ROC Water Technologies have a positive impact on the environment," says Holl. "These companies improve the standard of water from mining sites in South Africa and help us tackle problems such as water scarcity with real, tangible solutions," he adds.

For more information on The Innovation Hub, please contact Linah Nematandani at lnematandani@theinnovationhub.com 012 844 0030 / 071 673 9964 or visit www.theinnovationhub.com.



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Desalination must be part of SA's water supply solution

SOUTH Africa is facing a deepening water crisis. The 2030 Water Resources Group predicts that based on our burgeoning population, economic growth forecasts and current water use efficiency, the country's demand for water will exceed supply by 17% in 2030.

Joyce Moganedi, Manager of Power and Water at ABB Energy Industries South Africa, says that obtaining potable water from sea water must be part of the solution if we are to avert South Africa's worst-ever water crisis. "With the right technology and systems in place, the high energy consumption and costs typically associated with desalination can be mitigated," says Moganedi.

Three methods are used for the desalination process: reverse osmosis, multistage flash and multi effect distillation. In some cases, these can be combined in a hybrid solution. The energy requirements of a desalination plant can account for up to 50 percent of its running costs.

"In the last few decades, production costs in desalination plants have fallen fourfold thanks to the emergence of highly efficient electrical equipment," says Moganedi. "Energy efficiency and life cycle cost optimisation are the critical challenges to be overcome in the development and operation of desalination plants.

"ABB's approach to desalination has three pillars. The first is the constant development of highly efficient products such as drives and motors that contribute to a desalination plant's electricity bill. The second is accurate energy audits and advice for plant modifications to help the overall energy footprint, including using a variable frequency drive to control the process. The final, and perhaps the most important pillar, is leveraging the full potential of Industry 4.0. Digital solutions optimise the process by giving operators insights to make immediate decisions that enable the same production levels, but with less energy. Variable speed drives and motors maximise plant efficiency and productivity levels. They are used to control the flow rate of pumps and can reduce energy consumption by up to 60 percent. They also reduce the mechanical and electrical stress on pumps and aeration equipment, significantly lowering maintenance costs.

"Extending the life of assets makes desali-

nation more affordable. When digital solutions are applied to one of the most critical pieces of equipment in a reverse osmosis plant, the membranes, the condition of the membranes can be chosen as a main parameter to decide the regeneration point, rather than production volumes or time. ABB's

solutions are modular and can be scaled up from equipment level to plant level and even at a network level," explains Moganedi.

Examples of desalination projects for South Africa to emulate include the world's largest desalination plant in Taweelah, Abu Dhabi, United Arab Emir-

ates, Moganedi asserts. "The power solutions provided by ABB will enable this facility to set new benchmarks for its size, efficiency and cost by utilising the lowest amount of energy per cubic metre of water produced."

The plant will have the capacity to process over 900 000 cubic

metres of seawater per day; enough to meet the demands of over 350 000 households. It is scheduled to be fully operational in the fourth quarter of 2022.

At the Magtaa desalination plant in the western Oran region of Algeria, ABB supplied a turnkey electrical solution to power what

was, at the time, the world's largest membrane-based reverse osmosis seawater desalination plant. This plant has a designated capacity of 500 000 cubic metres per day of drinking water to serve about five million people.

"ABB was responsible for the design, engineering, supply, installa-

tion and commissioning of the electrical plant system, which included constructing a 220kV outdoor substation to provide power to the facility and supply products such as power transformers, medium-voltage drives and a range of medium and low-voltage switchgear," says Moganedi.

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Measuring water usage in rands and cents

AFTER the relaxation of the hard lockdown restrictions, some South Africans received shocking water bills. This is due to estimated consumption readings done by municipalities – as no meter reader was going on site.

Estimated and manual meter reading are methods used to bill

consumers for their water consumption. The estimated reading is when the meter reader does not go to your property. An algorithm is used to guess how much water has been consumed. This is contrasted with a manual reading; which is used to bill a consumer when a meter

reader has been to the property.

Moving to smart water monitoring devices will empower citizens to be aware of their water consumption in money value. They will be more mindful of the rate they use water and wastage - saving money and preserving this

scarce resource.

What makes this more interesting is that consumption information is presented to the users through an App in Rands and cents; the language they know best. The consumer can also share water usage information with the municipality to mitigate billing errors.

Pros of smart water monitoring devices

- Greater and detailed feedback regarding usage
- Sends regular readings to your distributor
- Notifies you when tempered with or there are leaks

Cons of smart water monitoring devices

- Additional fees for the installation of the device
- Privacy concerns for the personal data collected
- Consumer responsible for device maintenance

The Lesira Teq Smart Prepaid Meter and Jojo Tank Level Monitor are proving to be convenient in monitoring water supply and consumption in homes remotely – especially at a time when citizens are encouraged to remain indoors.

These devices give households the power to have visibility and control over their water usage. The approach takes away the inconvenience of estimated or manual readings. It ensures that all your bills are accurate; which means no more paying either too much or not having enough and having to make up the shortfall.

The value of smart water monitoring goes beyond just the consumer, municipalities can also benefit from smart meters. Municipalities can send real-time automatic notifications to field teams when leaks are detected, a Jojo tank is empty or is being tampered with.

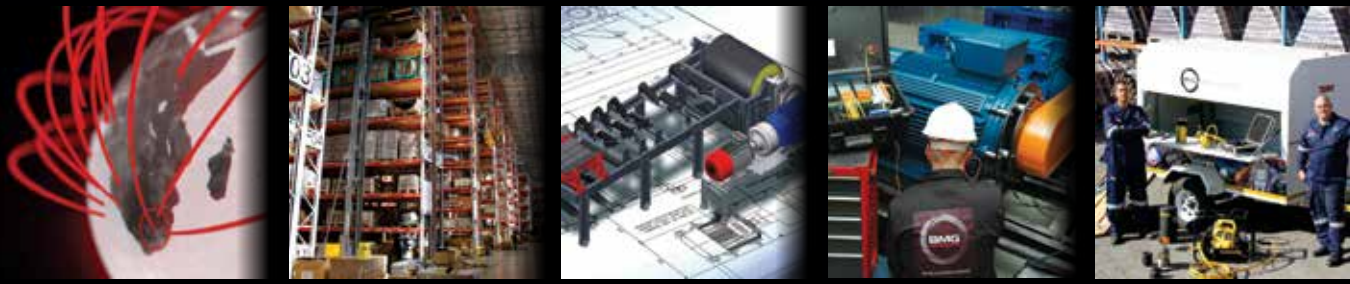
What makes the meters “smart” is their ability to provide detailed and accurate analytics on water usage in real-time or at predetermined intervals, all without a technician.

To communities and businesses that use Jojo tanks, a common problem that often arises is not knowing the level of the water in the tank. The Jojo Tank level monitor notifies authorities when the tank has reached maximum water capacity, running low or empty.

These devices transmit their consumption information, which a user can access through a mobile app on their smartphone. “They are both monitoring and management devices, placing the power of consumption in the hands of the end-user,” says Edwin Sibiya, Lesira-Teq’s Chief Executive Officer. “Consumers can track their water consumption daily or monthly on the Lesira Customer Smartphone Application and make better decisions about how water is used in their household or business.”

As you can see, smart water monitoring systems save you money in more ways than one. Not only that, but it also teaches you how to strategically use water in your household. The progress of technology brings us new tools every day, and there are many plans for advanced metering infrastructure being developed as we speak. That is why every home should have a smart meter, if not now then in the recent future. There is no reason to spend your money on bills more than it is necessary!

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Maintenance slashed from 90 minutes to just 5 at effluent treatment plant

QDOS peristaltic pump technology from Watson-Marlow Fluid Technology Group, is delivering a significant reduction in maintenance time - from 1.5 hours to just 5 minutes - at the local authority effluent plant in Selters (Westerwald), Germany. The Qdos pump is being used in preference to traditional diaphragm pumps for metering precipitants that help eliminate phosphate in wastewater.

The local authority of Selters (Westerwald) in the west of Germany operates a modern effluent plant for purifying wastewater and treating slurry. Wastewater from nine local communities with a population of 11 500 is purified here.

Phosphate elimination

“Wastewater is purified and discharged into a nearby stream – the Saynbach,” explains plant manager Achim Linder. “An important stage in the purification process is the elimination of phosphates, most of which come from domestic washing and cleaning products.”

While the phosphate content of the water inflow is usually around 5-6 mg/l, the concentration after purification must not exceed 1.6 mg/l. To avoid this, a measured amount of precipitant is added (before the water enters the aeration tank) as soon as the concentration of phosphates in the wastewater reaches a concentration of 1.0 mg/l.

“We add Ferric Chloride to eliminate the phosphate,” says wastewater manager, Bernd Schenkelberg.

Diaphragm pumps not robust

The addition of the precipitant converts the phosphate solution into insoluble phosphate compounds, which can then be isolated. The introduction of the ferric chloride from a large tank takes place at the precipitant metering station, with metered controlled using phosphate measurement. Depending on the phosphate content of the inflow water, delivery is between 60 and 250 ml of ferric chloride per minute. Until fairly recently, diaphragm metering pumps were used, but these proved insufficiently robust.

“The ferric chloride attacked the pump diaphragm, meaning it had to be changed every three to four months,” explains Mr Schenkel-

berg. “This took one of our technicians at least an hour every time and, because of the subsequent leakage of ferric chloride, almost as long again to clean the metering station.”

For this reason, automation experts from Siershahn-based Jonas Schalta n l a g e n b a u GmbH were invited to help find an alternative.

“In view of the susceptibility of diaphragm pumps we had to consider an alternative functioning principle, which brought us quickly to peristaltic pumps and the market leader Watson-Marlow, who recommended their Qdos pump,” says Benjamin Bullert, project Manager at Jonas Schalta n l a g e n b a u.

Effective functioning with minimum maintenance

The decision was made to test the Watson-Marlow Qdos 30 metering pump in the precipitant metering station.

“The simple but effective functioning principle did not take long to convince us of its suitability,” says Mr Schenkelberg. “Qdos is also intuitive to use and easy to operate.”

The greatest advantage of the Watson-Marlow Qdos pump series, however, lies in its minimal maintenance requirement and the resulting reduction in downtime.

“Previously, we always had to factor in a time slot of 1.5 hours for changing a pump diaphragm,” states Mr Schenkelberg. “In contrast to this, the pumphead on the Qdos can be changed as a complete component in just a few simple steps. It takes five minutes at most.”

Reliable performance

Employees at the Selters local authority plant are also more than satisfied with the maintenance intervals on the Qdos. They report that the diaphragm had to be changed three or four times a year with the old pump, whereas the ReNu pumphead on the Watson-Marlow Qdos has already lasted for a full year.

Not only can the pumphead be changed in minutes without the use of tools but, unlike changing a diaphragm, it can also be done without mess. The flow direction on the pump can be reversed easily, and the precipitant chemical fed back into the storage vessel from the pipe system. This means that hardly any fluid escapes

while the pumphead is being changed, thus making maintenance much simpler and safer.

The Selters local authority plans to purchase more Watson-Marlow Qdos pumps in 2015, for both the central effluent treatment plant in Selters and other effluent treatment plants in the local authority area.

Innovative development

The pumpheads can be removed and replaced quickly and easily, without special tools or knowledge, thus minimising downtime during maintenance.

The pumphead can be configured specific to site requirements, either left or right on the pump housing, which is particularly advantageous in restricted environments. Good sealing and integral fluid recovery prevent unnecessary wastage and safeguard the operator. The pump is controlled via a menu-led intuitive user interface with a 3.5” TFT colour display and easy-to-see status indicators. Keyboard, display and all connecting terminals are easily accessible.

Qdos pumps are innovative and versatile in application, and



are available in various sizes. Qdos 30 delivers fluids at a rate of 0.1 to 500 ml/min, while the larger version, Qdos 60,

delivers up to 1000 ml/min at pressures up to 7 bar. Both are suited to challenging metering applications in the fields

of water processing and disinfection, controlling pH value and metering flocculants, reagents and chemicals.

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Resolving SA's water crisis: Be part of the solution

IT is often said that the next world war will be fought over water. The United Nations, scientists, and governments the world over have been trying to raise awareness over the increasing scarcity of this critical resource. "But what many misunderstand is that it is not the lack of water that will see wars waged – it is the lack of *clean, quality* water," says Gerhard Cronje in an exclusive interview with CBN. Water can be a near-infinite resource if it is treated properly.

Cronje is the CEO of Maskam Water, a company which he started in the early 2000s in response to the demand for small scale wastewater treatment solutions. Having originally imported the systems, the company now proudly manufactures their flagship Clarus Fusion Wastewater Treatment Plant in the Western Cape and supplies it to the wider sub-Saharan African region.

Cronje expressed concerns over the deteriorating quality and increasing pollution of South Africa's precious water resources. "Once a river or dam is severely contaminated, it becomes almost impossible to rehabilitate. It takes decades," he says. Considering the current state of the Vaal River, as an example, this is a worrying truth indeed. The Vaal situation has been investigated by the SA Human Rights Commission, who have reported that "Gauteng's most vital water resource may very well have been irreparably damaged". While the Government has set aside R1.1 billion over the next three years for refurbishment of the wastewater treatment plants, urgent and more immediate action is needed.

Indeed, the state is responsible for the development, maintenance and sustainability of South Africa's water infrastructure, but water is "everyone's problem" comments Cronje. "We are polluting our own drinking water." He says that the private sector can work to minimise the strain on existing infrastructure by investing in on-premises water treatment solutions. "We cannot continue to discharge liquid waste into a system which we well know isn't functional. We are playing with people's lives downstream; contaminated water poses a severe health risk," says Cronje. Given South Africa's growing population and increasing urbanisation, our water crisis is not going to be resolved without the action of every stakeholder.

A compact, energy-efficient and cost-effective wastewater treatment solution is within reach of South African businesses looking to play their part. The Clarus Fusion is easy to install, placed underground and out of sight. Once running, it requires just one hour of maintenance every 6 months and has a service life of 40 years. "The system means you save water as well as money, by treating and upcycling your wastewater. Used on an industrial site, we have seen an ROI of 6.5 years. For businesses which run on septic tanks, the ROI becomes even better, in some cases it is as low as 12 months, as you no longer need to pay for waste removal," explains Cronje.

The solution was recently

installed at the Department of Environmental Affairs offices in Cape Town CBD and has achieved water savings of 1 million litres a year. "It's a drop in the ocean when you consider that the City of Cape Town uses about 650 million litres a day, but imagine the impact possible if more businesses adopted this kind of solution. Pressure could be taken off public infrastructure, giving government room to

carry out much-needed upgrades and maintenance."

"You either have to be part of the solution, or you're going to be part of the problem." This famous statement from Eldridge Cleaver rings true for this dire situation. South African businesses are encouraged to take action, help secure our water future, and further the sustainability of our national infrastructure.



Installation of Clarus Fusion wastewater treatment plant.



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Comprehensive analysis of seafarer availability and manning costs

MANNING Annual Review & Forecast Annual 2021/22 provides one of the most complete annual assessments of vessel manning costs available in a single source. Seafarer cost assessments, trends and employment terms are provided for 38 representative ship types, spanning the chemical, container, dry bulk, general cargo, LPG, LNG, offshore, oil tankers, reefers and RoRo sectors. The report also examines current and projected supply and demand for seafarers and the likely impact on skills requirements and wage costs.

- Benchmark crew wages and employment terms - Officer wage rates 2011-2021 and voyage length/leave by nationality covering container, dry bulk, LNG and tankers
- Crew budgets - Crewing budgets including wage, victualing, travel and miscellaneous costs, for 38 different vessel types & sizes covering the chemical, container, dry bulk, general cargo, LPG, LNG, offshore, oil

tankers, reefers and RoRo sectors

- Employment terms & 5-year cost forecasts - Trends in terms and conditions of service, including voyage length and leave, as well as manning cost forecasts covering the period 2022-2026
- Seafarer supply - Latest trends and projections for seafarer supply, including assessments of key drivers such as occupation and wage rate attractiveness relative to shore-based roles, with forecasts of officer supply to 2026
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vessel sectors and overall wage levels, as well as forecasts to 2026

- Country analysis - Seafarer supply 2014-2021, 2021 wage rates breakdown across 10 pay grades, premium rates, pay relative to shore-based roles, seafarer reputation and market sentiment. Data covers Bulgaria, China, Croatia, India, Latvia, Philippines, Poland, Romania, Russia, Ukraine and UK
- Rising seafarer supply regions/countries: Analysis of emerging sources of seafarer supply in Africa and South East Asia. Data covers Indonesia, Myanmar and Vietnam
- Impact of Covid-19 pandemic on manning: Analysis of impacts on seafarer mental health, future seafarer supply, cost implications and mitigation options

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Decarbonizing Shipping seminar: Turning IMO and EU regulation into action

Copenhagen on September 21, 2021



Copenhagen Operaen.

The event promises valuable insights into how key stakeholders like Maersk, MAN Energy Solutions and Trafigura plan to turn the IMO and EU's most recent CO2 regulations into action.

AN opportunity to meet some of the companies that will define whether shipping achieves its target to reduce CO2 emissions significantly in the coming years, and find out how these players plan to transform the CO2 requirements most recently set out by the IMO and EU into concrete action.

The conference takes place in the heart of Copenhagen. It will be

the first conference held by ShippingWatch since the outbreak of the coronavirus pandemic, where it will once again be possible to network in person - albeit in compliance with the applicable restrictions at the time.

By then, the IMO will have held its next meeting in the Marine Environment Protection Committee, MEPC, just as the EU Commission will have concretized its milestone project, the Green Deal. The framework is therefore set for how shipping and the maritime industry must deliver on the global reduction targets.

The preliminary list of speakers is as follows:

Maersk - Head of Decarbonisation Business Development Berit Hinnemann

Trafigura - Global Head of Fuel Decarbonisation Rasmus Bach Nielsen

MAN Energy Solutions - Senior Vice President Head of Two-Stroke Business Bjarne Foldager

Wärtsilä - General Manager Kaj Portin

University College of London, Energy Institute - Lecturer Tristan Smith
Maersk Mc-Kinney

Moller Center for Zero Carbon Shipping - Head of Onboard Vessel Solutions Claus Graugaard

Danish Maritime - CEO Jenny N. Braat

Danish Shipping - Executive Director Maria Skipper Schwenn

Alfa Laval - Vice President Lars Skytte Jørgensen

Odffell SE - Chief Sustainability Officer Øistein Jensen.

To register, and for more information, visit: https://www.relevant.dk/event_green_shipping_2020

AI enabled platform offers full service shipbroking

Vessels' ship sales and purchase unfazed by pandemic.

ACROSS the last decade, the global shipbroking market enjoyed growth from various drivers including increasing global seaborne trade, falling oil prices, swift economic growth and rising energy consumption. Unfortunately, the pandemic disrupted shipping industry, and made its way into vessel sales and purchase.

further threatened sales and purchase - causing buyers and sellers to reconsider their decisions.

Marine Online helps both buyers and sellers bypass disruptions in vessels sales and purchase. Unrestricted geographically, its platform offers a broad network, acting as an effective bridge between both buyers and sellers. Surveys

climate, our platform effectively converges all buyers and sellers. Additionally, our wide network of authorised service providers is able to carry out necessary surveys, clearances and other marine services wherever the vessel is located. Marine Online's team of experienced professionals would be overseeing the whole process, ensuring smooth and secure transactions."

Marine Online is a client-centric platform providing maritime professionals with effective vessel sales and purchase solutions. To date, Marine Online has transacted for both buyers and sellers worldwide including Indonesia, China, Singapore and Vietnam.

For more information, visit: www.marineonline.com

"In this challenging economic climate, our platform effectively converges all buyers and sellers."

Travel restrictions made it significantly harder for buyers to source for the right ships. Similarly, a smaller pool of buyers compelled sellers to release their vessels at a loss. Tightened safety controls thwarted vessel inspections which

can also be carried out by Marine Online's authorised service providers worldwide upon a successful transaction.

Bharat Bahl, Marine Online's Sales and Purchase Manager highlighted: "In this challenging economic

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The Donna Nicholas at speed.

Cummins powers latest NSRI's new Search and Rescue (SAR) vessel

THE National Sea Rescue Institute's (NSRI) second Offshore Rescue Craft has begun service at its home station in Simon's Town.

The latest vessel, which was imported as "hull, deck and bulkheads", was completed by Two Oceans Marine in Cape

Town and features a Cummins QSC 8. 441 kW (592 Bhp) @ 2 800 r/min – with a ZF 370V gearbox.

"Named the Donna Nicholas, the R20 million vessel has been purposely designed in France by Pantocarene Naval Architects and

built for the worst of the conditions the Cape has to offer", said Station 10, Station Commander, Darren Zimmerman.

At 14.8 m long and 4.8 m wide the new self-righting vessel can be deployed on rescue missions as far as 50 nautical miles (over 92km)

from land and has an expected lifespan of at least 40 years.

Two Oceans and Cummins commissioned the unit once upon floatation and shake down trials occurred during delivery voyage from Cape Town to Simon's Town.

Cummins has offered a service level agreement to take care of the servicing and maintenance and its application engineer Gerhard Potgieter conducted classroom training and familiarisation on-board.

"Our fleet replacement programme will see the entire NSRI all-weather search and rescue fleet replaced with the new vessels over about 10 years, allowing for increased operational capability," said NSRI CEO, Dr Cleeve Robertson.

The new world class search and rescue vessels will accommodate six volunteer rescuers on board, in shock mitigating seats to allow for high-speed operation in difficult sea conditions and has the ability to carry up to 23 survivors.

"Although most rescues are coastal and inshore, an increasing number of our operations require search and rescue vessels with extended range and advanced capability in safety and technology," said Dr. Robertson. "As the only maritime rescue service operating in Southern African waters, we needed to make this investment to ensure all round safety for crew and those being rescued."

Robertson also cited the additional impact on South Africa's maritime economy. "Our new vessels will be a safety net for a range of industries such as tourism, fishing and water-based recreational industries. Not only will they improve safety, but the fact that we are investing and assembling locally also presents an opportunity for the maritime boat-building industry."

The NSRI is entirely funded by donations, receives limited government support and is the only national organization delivering coastal rescue services. "This is a huge investment for a non-profit organisation, but it had to be done. The investment into lessening the risk of lost lives, of our crews and those stranded at sea, is more than worth it. Our coastline is busy, and the people who make our blue economy thrive deserve to be protected" he said.

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Raw materials shortage puts coatings industry under pressure



Tara Benn.

A serious shortage of raw materials, coupled with substantial increases in prices

for raw materials, has put the South African coatings industry under intense pressure, says Tara Benn, executive director of the SA Paint Manufacturing Association (SAPMA). Benn says a complex mix of demand, production issues at global chemical plants, and scarce transport resources for key raw materials are hitting the supply chain with resultant enormous implications for an industry already badly

hit by pandemic lockdowns last year.

The main reasons for the coatings raw materials shortage and price rises in SA are:

- An increase in demand for paint and raw materials from neighbouring SADC markets which lost a significant supply of imported material from China, India and the Middle East due to Covid-19 shipping restric-

tions. "Companies in the SADC then turned to SA to provide alternative supplies which, although providing welcome new business, nevertheless drained local supplies," Benn explains;

- Heavy snow storms and sub-zero temperatures in the USA that forced several key US raw material suppliers to halt production;

- The closure of several plants in Europe during lockdowns which led to raw materials suppliers invoking "force majeure" to contractually break supply obligations; and
- Soaring transportation costs due to the sharp rise in oil prices and shortage of containers. "The pandemic lowered commodity demand and therefore the traffic and volume of containers mov-

ing geographically between regions decreased. As demand picked up again, sea freight costs skyrocketed. SAPMA estimates that on average sea freight costs have gone up by 40% to 55%."

Benn says according to the European Paint Council, CEPE, the shortage of raw materials is an "immense burden" for the coatings sector worldwide as raw

material prices account for more than half of the cost of finished products. Since January last year, costs for key components such as epoxy resins have risen by 60% in Europe, while among solvents, prices have soared by up to 123%, CEPE has estimated.

"The current situation is exacerbated by the unexpectedly rapid economic recovery in China, which is also fuelling demand for key raw materials," Benn added.

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new Rosemount™ 4390 series of corrosion and erosion wireless transmitters and Plantweb Insight Non-Intrusive Corrosion application. The monitoring portfolio turns existing offline corrosion probes into online tools to monitor for the risk of corrosion or erosion in oil and gas processing.

Combined with Emerson's class-leading range of non-

intrusive Rosemount Wireless Permasense sensors for monitoring metal thickness, which is a major factor in determining the health of piping and other fixed equipment, Emerson now offers a comprehensive solution to monitor both the risk of corrosion or erosion, and the impact of that risk on the health of the plant or asset.

The new Plantweb

Insight Non-Intrusive Corrosion application for non-intrusive corrosion monitoring complements the existing suite of Plantweb Insight applications, enabling comprehensive corrosion and erosion analysis at the end-user's desk.

When instrumented with inline probes, changes in corrosion risk can be detected in minutes, enabling sites to take corrective

actions before damage occurs. The Rosemount 4390 series of corrosion and erosion transmitters leverage WirelessHART® for reliable and robust data retrieval and work with Emerson's inline probes that measure the corrosive and erosive nature of the fluid and provide early risk detection for a site. The Plantweb Insight Corrosion applications allow users to access

and analyse data from pipe thickness monitoring sensors and inline probes at their desk and gain real-time advanced analytics to assess the risk and impact of corrosion or erosion on the asset or plant.

"Launching these products augments Emerson's existing corrosion and erosion monitoring capability within our Plantweb ecosystem. Wire-

less data retrieval enables cost-effective deployment at-scale, class-leading data visualization and analysis software, and connected services for our clients to fully monitor their corrosion and erosion challenges to drive maximum capability and profitability in their plant assets," said Jake Davies, global product director for Emerson's corrosion business.

Stainless steel metal fabrication – get the right tool for the job

WHEN it comes to fabrication with stainless steel, using the right tool is essential for achieving optimum results.

Grinding Techniques has a complete range of products specifically manufactured for all stainless-steel cutting, grinding and finishing applications.

One of the most important factors to consider is the non-contamination of the material during application. The Superflex

"Inox" range, is specifically manufactured for stainless steel. Free from iron, sulphur, and chlorine, it will not burn or discolour the material. Available in various diameters and thicknesses, discs may be selected dependent on application.

A popular product is its Superflex Professional Slimline range. These discs come in a thickness of 1.0mm up to 2.5mm and will provide a clean, fast cut with less to no burrs to

be reworked after cutting. Particularly suited to thin stainless steel sheet metal, this product delivers effortless cuts with great results.

Another versatile product that can be used for both grinding or stock removal, and finishing, is Superflex Flap Discs - particularly useful when it comes to welding applications where a smooth and seamless finish is required after the welding operation. Available in four tiers

ranging from Evolution suited for general purpose applications, to Premium Inox specifically manufactured for stainless steel to ensure the ultimate surface finish. Manufactured from high-tech ceramic grains that self-sharpen, offering both excellent stock removal and a cool grind, the Premium range will not discolor, or contaminate the material. Grits from 40 up to 120 allows for a versatile choice to suit almost any application.

The Premium range also includes a flap disc suitable for non-ferrous metals.

Apart from cutting and grinding solutions, Grinding Techniques carry a range of coated and non-woven abrasives. Sanding belts can be manufactured for handheld machines, pedestal or floor machines, stroke sanders as well as wide belt machines. To achieve a brushed finish, opt for finer grit belts.

Non-woven prod-

ucts are composed of abrasive grains that are fused to a three-dimensional support of nylon fibres. Uniform distribution of the abrasive combined with the softness of the material ensures a constant and consistent finish throughout the working process and product's lifetime to suit applications for a mirror, satin, or a brushed finish.

When blending the scratch pattern with the non-woven range of products, a matte finish

can be achieved which can then be reworked to a mirror finish by using a range of products from light de-burring wheels, buffs, mops, and soaps.

Whatever the cutting, grinding or finishing requirement, Grinding Techniques offer a total customised solution to suit any stainless-steel need.

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Hot dip galvanizing for superior corrosion control of iron and steel articles

Hot dip galvanizing provides reliable, easily maintainable and proven longevity when it comes to the corrosion control of steel. Hot dip galvanizing is the foremost corrosion control technology proven in practice for more than 150 years. The unique combination of both protection by the galvanized coating barrier and cathodic protection are well proven in warding off corrosion. Galvanizing's corrosion control in low level almost benign conditions will last well in excess of 80 years without the need for maintenance. In more aggressive corrosion environments, corrosion control by galvanizing is a prerequisite for ensuring structural integrity of the steel employed over any meaningful service life.

Ensure your hot dip galvanizing is done to standard

Standards mean quality. For corrosion control using hot dip galvanizing the local SANS standard is SANS121:2011, adopted in its entirety from the International Standards Organizations (ISO) 1461:2009 standard.

SANAS accredited certification through an approved authority

of the SANS121:2011 standard is an indication of a Hot Dip Galvanizer's ability to produce coatings compliant to the standard. In many instances the SABS Mark scheme is adhered to by galvanizers. This mark scheme is an independent quality mechanism subject to stringent conditions and quality practices.

Copies of the SANS 121:2011 standard are easily procured via the SABS online services at reasonable rates.

Science but not rocket science

Hot-dip galvanizing is a metallurgical reaction between clean steel and molten zinc. Like all science some understanding of the way it works is necessary. The biggest advantage of a hot dip galvanized coating is that rust cannot develop between the steel and the coating. The colour of weathered galvaniz-

ing is always dull grey even if it originally has a bright shiny appearance. You can paint over a galvanized coating by preparing the galvanized surface with chemical cleaning and keying to allow a zinc compatible paint system to be applied. This is termed Duplex Coating and is proven to provide additional corrosion control benefits especially in the highest level of corrosion environments (C4 to CX).



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To subscribe free of charge to the HDGASA magazine 'HOT DIP GALVANIZING Today', drop us an email to with your full name, postal address and contact number to hdgasa@icon.co.za for Attention: The Marketing Manager



nized steel structures, the structure or its elements can be reused and repurposed across several projects and many years without loss of beneficitation.

The Hot Dip Galvanizers Association

The Hot Dip Galvanizers Association Southern Africa (HDGASA) is a not-for-profit trade organization, founded in 1965, dedicated to serving the needs of end-users, specifiers, architects, engineers, contractors, fabricators and hot dip galvanizers throughout Southern Africa.

To further this aim, the Association provides advisory involvement, training and information by way of courses, workshops, specialized presentations on corrosion control, technical research papers and case studies of hot dip galvanizing's effectiveness at corrosion control.

The Association liaises with regulatory and standards authorities governing the corrosion control and associated industries. The HDGASA provides services for independent inspection against relevant standards and reviewing compliance against the relevant standards by the stakeholders in the industry, and provides applicable analysis through metal-

lurgical and SANAS approved analytical laboratories.

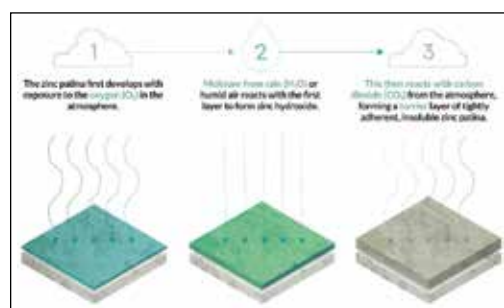
The galvanizing members of the HDGASA represent the majority of the hot dip galvanizing fraternity both by mass and value in sub-Saharan Africa. Through close liaison with the EGGA, AGA, Australian Galvanizers and associated organizations the HDGASA maintains a global presence and participates in arenas of common interest including the ISO standards.

The HDGASA publishes supporting literature such as our *Steel Protection Guide*, *Design Wall Chart* and *Facts about Hot Dip Galvanizing*. These are used effectively to bring third parties with little or no knowledge of hot dip galvanizing up to speed with the technology.

Our magazine titled "Hot Dip Galvanizing Today" is distributed to around 2 800 interested recipients keeping them in touch with current technology, events and opportunities.

HDGASA Website

The HDGASA website is a mine of information. With resources including case studies, guidelines and answers to frequently asked questions this information gateway is free to access at www.hdgasa.org.za.



Hot dip galvanizing and steel in the circular economy

Both zinc and iron or steel are 100% recyclable. The scarcity of resources locally and globally must address a community's ability to use existing infrastructure and materials rather than building from a zero base. By extending the service life of materials by re-purposing, rejuvenating and if need be recycling will ensure long term benefits needed to ensure sustainability in a responsible forward thinking manner. By using hot dip galva-



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100 MW self-gen threshold: Boon for big business, doom for others?

By Aimee Clarke, CBN

THE recent announcement by President Ramaphosa of the new 100 MW threshold for embedded electricity generation, up from just 1 MW, was welcome news for many companies. However, while big businesses are jumping to investigate their self-generation options, there are many others who are destined to remain in the dark.

The ability to invest in on-site power generation is a luxury afforded to mature businesses with reliable cash flow – and a lot of space. A clear example of this is the 40 MW solar plant planned for Gold Fields’ South Deep mine in Gauteng, with a R660-million price tag and spanning the area of 200 soccer fields.

“Yes, R660 million is a significant invest-



Goldfields South Deep Mine.

ment, but so are the benefits of operating our own solar plant. Unaffordable and unrelenting Eskom tariff increases, and unreliable supply of electricity is a major risk for all mining companies,” comments Martin Preece, EVP of Gold Fields South Africa.

The solar plant will be funded from the mine’s positive cash-flows over the next two years, and will generate 22% of the average electricity consumption of the mine.

“Other mining companies have developed or are in the process of developing their own

solar plants,” says Preece.

This is great news for the sustainability of the mining industry, both in terms of business and the environment. But what about the thousands of other companies and SMMEs in South Africa? They now face

two challenges: 1) a lack of resources for their own self-gen project and 2) the ongoing problems with Eskom – which may just get worse as many of the utility’s blue-chip customers get off the grid.

The solar farm at South Deep will translate into a R120 mil-

“...since the announcement, Gold Fields is now investigating upping capacity to 70 MW.”

lion annual saving of the cost of electricity for the mine. That is R120-million less to Eskom, which is already facing dire financial constraints. Add to that, the Deep South solar plant is planned at less than half the newly announced threshold for generation capacity. A single 100 MW plant could deprive Eskom of R300-million in business.

Preece has confirmed that since the announcement, Gold Fields is now investigating upping capacity to 70 MW. Many mines are sure to follow suit, potentially generating billions of Rands worth of their own power each year. While many

stakeholders have hailed the new regulations as key in alleviating grid pressure and give Eskom room to complete much-needed maintenance and construction, it could well have the opposite effect. Losing business to self-generation might worsen Eskom’s woes, and grid-reliant businesses will be caught in the crossfire.

The “good” news is: this won’t happen overnight. Preece says, “It will take years for all the planned renewable projects to be commissioned. Until then, the industry will still be solely dependent on Eskom, and the utility’s high tariffs and continued load-shedding will be a major obstacle.”

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Power utility reliability boost from large transformers

PRECISION manufacturing at the WEG Blumenau factory in Brazil allowed Zest WEG to supply two large, custom-built power transformers a month ahead of deadline to a power utility strengthening the reliability of the region's power system.

The fact that both 500MVA 400kV transformers passed the factory acceptance test (FAT) first time around paved the way to early delivery. This achievement, according to Jan-Frederik Viljoen, executive transformers at Zest WEG, is a testament to the company's design

and manufacturing quality.

The 348 ton units are the largest yet produced by WEG – with each unit boasting a power rating of 500MVA and voltage class of 400kV. This delivery efficiency reinforces Zest WEG's position in the local market.

"Our South African team participated actively in this project, reaffirming WEG's commitment to the development of our employees and the transfer of skills," says Viljoen. "We see this as a vital contribution to the development of the country, as well as

the alleviation of the energy shortage in the region."

He says the benefits of these transformers include robustness, flexibility and reliability – contributing directly to the development of the local economy. They are also an important element of expanded investment in emergency capacity to generate complementary power supply for the region.

Zest WEG's manufacturing operations in South Africa include two transformer factories near Johannesburg, which produce and supply the local market with 145kV

voltage class transformers. This contract is an important achievement for Zest WEG, which is deepening its contribution to power generation, transmission and distribution as part of its developmental mandate. The company is well-established in the mining and industrial sectors, and is currently raising its level of engagement with power producers and municipalities.

Zest WEG's portfolio includes power distribution equipment such as miniature substations, distribution transformers and power transformers,

as well as packaged switchgear and automation solutions such as E-Houses, Motor Control Centres (MCC) and electrical enclosures. Among its power generation solutions are conventional diesel generators, combined heat and power generation (CHP) and renewable energy generation.

Other offerings relevant to the public sector include the supply of substations and electrical infrastructure, including the design, supply and construction of overhead lines, substation mechanical and electrical construction, and electri-



The largest transformer yet produced by WEG during manufacturing at the Blumenau factory in Brazil.

SF6-free switchgear will play a vital role in renewable power supply and smart grids

Thoughts from Marcel Buckner, ESS Business Development Manager at Eaton Africa

THE global energy industry is undergoing a massive transformation driven by renewables. Along with solar, wind, storage and other technologies, the internet of things is helping to drive this transformation. It is changing nearly every part of the industry from generation to transmission and distribution,

and transforming how energy companies and customers interact.

In South Africa, renewable energy makes up a very small part of the country's energy mix. This needs to be improved as the country's reliance on coal is still very high. However, fossil fuel-based electricity generation is not the only aspect of the energy industry with negative impacts on the environment.

South Africa's greenhouse gas emissions are among the high-

est in the world and its absolute carbon dioxide (CO₂) emissions rank among the top twenty countries in terms of environmental damage. Government recently announced a draft climate plan that proposes deepening its CO₂ emissions cut by almost a third in 2030. This cuts emissions by 28% when compared with its 2015 pledge, which capped annual emissions at 614 MtCO₂.

Usage of the SF₆ gas in electrical switchgear has also been one of the most debated

points linking to the rise of Sulphur Hexafluoride emissions. As with the evolution of any technology, alternatives of SF₆ have been introduced in the last few years, subsequently leading an era of "Green Switchgear".

A report released by the European Commission on the replacement of SF₆ gas in switchgear demonstrates that SF₆-free technologies are the future for the energy industry. Amid climate change, energy leaders are coming to

one common denominator: the only long-term solution that the energy industry must eventually adopt is the one that best coexists with the environment. The SF₆ gas has been an accepted solution for many years now but based on the market and policy adjustments, it is only a matter of time before SF₆-based technologies are replaced by the greenhouse gas-free alternatives.

Eaton has been pioneering the production of compact,

SF₆-free, medium voltage switchgear since the 1960s. The power management company made the decision to insulate its medium-voltage switchgear products with vacuum technology, instead of greenhouse gas Sulphur Hexafluoride SF₆.

Given the various advantages and the fact that the use of vacuum does not have any adverse impact on the environment, the deployment of vacuum switchgear at higher voltages will be inevi-

table in times to come and further research is under way for its development.

Moreover, as the pace of renewable energy integration increases and there is widespread adoption of smart grid technologies, utilities would be required to increase the deployment of intelligent switchgear or to undertake modifications to transform the existing switchgear modules into smart switchgear as the availability of real-time data is critical.

Polish firm opens cutting-edge solar energy plant

By Stanislaw Waszak

A Polish company has launched the world's first industrial production line of solar panels based on groundbreaking perovskite technology, which could revolutionise access to solar power. Named after the Baltic goddess of the sun, Saule Technologies makes sheets of solar panels using a novel inkjet printing procedure invented by company founder Olga Malinkiewicz.

"We're scaling up, going from laboratory to production line," said Malinkiewicz, whose firm is based in the southern city of Wrocław.

The cutting-edge technology has been in the works for close to a decade but the plant opening comes at a for-

tuitous time, as the EU member is experiencing a solar boom.

Poland has long relied on coal for most of its energy needs but under an EU plan to cut emissions, its mines are set to shut by 2049.

Photovoltaic panels coated with perovskite film are light, flexible and can easily be fixed to almost any surface to produce electricity even inside buildings.

Manufacturing costs are down thanks to the inkjet printing procedure for perovskites, which makes it possible to produce the panels under lower temperatures.

Malinkiewicz developed the processing method in 2013 while still a PhD student at the University of Valencia in Spain.

Saule Technologies has received funding from Poland's green

energy leader Columbus Energy and multimillionaire Japanese investor Hideo Sawada.

Her discovery earned her an article in the journal Nature as well as an award from MIT and top spot in a competition organised by the European Commission.

Now, "we're opening the world's first factory of perovskite solar cells," she told AFP.

She said "demand already exceeds production capacity", which is estimated initially at an annual 40 000 square metres.

In the Himalayas and outer space

The first commercial orders have come in from the Internet of Things and construction sectors.

The technology

involved consists of printing layers of photovoltaic cells onto transparent plastic sheets.

The panels can be made very small or large, and can also be cut down in size or glued together to cover greater surface areas.

"We use synthetic perovskites that can achieve considerable efficiency and power and which we don't have to extract from nature," Malinkiewicz said at the factory's inauguration.

She told AFP that the perovskite solar modules were tested in outer space simulators, "to excellent results".

A pliant perovskite solar panel the size of an A3 sheet of paper "proved successful as a phone charger and other kinds of electronic equipment dur-

ing a Himalayan expedition, under extreme weather conditions," she said.

The company, whose team numbers 70 people from 15 countries, has received funding from Poland's green energy leader Columbus Energy and multimillionaire Japanese investor Hideo Sawada.

The firm is now preparing to launch on the Warsaw Stock Exchange and is also mulling new factories in Europe or perhaps Japan.

"Of all the photovoltaic systems in Europe, only four percent are manufactured on the continent," said Malinkiewicz.

"We're on the same page as the European Union when it comes to the importance of building them in our region," she added.

Solar inverter stations for PV generation plants

AS solar energy contributes increasingly to cleaner, renewable energy for a more sustainable world, WEG has introduced its complete ESW line of central inverter stations for photovoltaic power generation plants.

The WEG ESW 750 centralised solar inverter stations are custom-engineered for large scale solar plants, comprising a range of WEG's SIW 750 inverters, with a modular design to promote greater flexibility in their application.

They can easily be integrated to suit the specific requirements of each solar power plant, and can withstand even the most extreme weather conditions including ambient temperatures from minus 10°C

to plus 50°C. Available in capacities up to 10MW at 1 500V, these WEG solar stations represent an integrated solution with central inverters developed and manufactured with cutting-edge technology. Their design allows for quick installation and simplified operation and maintenance.

Solar power has become an increasingly competitive renewable energy source around the world, and offers fast installation with low environmental impact.

Developed to support this important global trend, WEG's central inverters provide a complete solution for investors who want to take the lead in contributing to a more sustainable future.

Self-storage leads in commercial property sector

WITH businesses and households downscaling, lifestyle changes and emigration is on the cards for many South Africans, causing something of a boom in the self-storage industry.

Globally, the sector is valued at around USD 40.73 billion and is expected to increase to USD 53.92 billion by 2026, according to Mordor Intelligence.

John Jack, CEO of Galetti Corporate Real Estate says that the self-storage revolution is a key player in the demand for industrial property, which has seen increased demand over the past year.

“Interestingly, storage tenant payment performance now outperforms all three major property sectors. An article by Forbes cited the self-storage sector as the most recession-resistant asset class as it remains resilient even in the toughest of times”,

Self-storage demand trending overseas

Self-storage first began in the US in 1960 and has since skyrocketed. Jack says that the recent demand has also been noted in Australia, where the industry is enjoying high occupancy rates and a favourable outlook. “In fact, it’s been said that companies are fighting for new sites and additional space to cope with the demand”,

Adding to this, US-based Extra Space storage recently reported occupancy levels of 95.7% (compared to 90.9%) at the same time last year.

On the local front

“In the past, self-storage units were hidden in dingy areas with little access. Today, they’re all fighting for prominent space and can be found in all major suburbs”, adds Jack.

Locally, Stor-Age



makes use of 71 properties - equating to roughly 448 600m2 of land space. While the rest of the commercial property sector - such as commercial and retail properties - struggle to recoup tenant repayments, the self-storage sector is fighting for prime locations and is expanding to meet demand. “It’s become a life-

line for the embattled commercial property sector and is responsible for filling many vacancies and covering many rental bills. The tenants themselves require little ‘frills and fuss’ in terms of amenities and are purely on the hunt for space based on location and price.”

Key players such as Stor-Age and Xtra

Space are two commonly known names in the industry. However, Jack notes that there are many rising players coming to the fore as this sector continues to increase in popularity.

He adds: “In the past, this sector was largely overlooked but today, we are all taking note. There’s also more talk of investors taking a bullish

approach by investing in self-storage REITs (Real Estate Investment Trusts)”.

“We at Galetti have just partnered with SpareSpace to bring short-term storage to the industrial market.”

What’s driving the industry demand?

Jack believes that while there is a myriad of reasons for the success of this industry and the rise of new players, but some of the main drivers include:

Low overheads and development costs: “While setting yourself apart with amenities is a strategy that some self-storage companies are keen to take on, the industry is driven by price and location. Setting up and maintaining a building of this nature is relatively straight forward and easy to do. It requires few frills and fuss. Security, location, size and the property price are the main purchase

The tenants themselves require little ‘frills and fuss’..”

drivers”, notes Jack.

Increased demand and steady income streams: “Many people are looking to new income streams and are going where there is demand. Investors are also looking to buy into the self-storage phenomenon with properties going for a steal. The biggest factor for investors is tenant repayments and thanks to the robust and sturdy nature of this sector, it’s attracting a lot of attention.”

Recession resistant: “A sweeping statement but none the less. As the rest of the commercial property sector works to get back to its former self, the self-storage sector remains resilient and consistent”, he concludes.

Mobile racking in South African fruit stores

SOUTHERN STORAGE Solutions – DEXION, has installed numerous mobile rack installations in conjunction with Barpro Storage which has increased the storage capacity of each facility without the expensive task of increasing the room size to cater for conventional pallet racking or drive

in racking with all the associated extra refrigeration and electrical costs.

Traditionally pallets of packed fruit were stored by securing steel corner posts to each pallet and then storing another level of pallets on top. While doubling store capacity, this form of block storage effectively pre-

vented stock rotation, increased stock damage and in some situations prevented adequate cooling. As fruit packaging became further differentiated, accessing stock quickly for an order became practically impossible.

Pallet racking was introduced into existing fruit stores to solve these problems.

“Drive-In” racking made better theoretical use of the chilled space and reduced product damage. However the accessibility problem was not solved leading to “drive-in” lanes being only partially utilised for immediate access to individual product lines. The alternative was to use fixed selective racking, giving immediate access to every pallet but greatly reducing storage capacity

Mobile racking was first used in 1997 in a fruit store outside Grabouw in the Western Cape. Designed to take a combination of 2 200mm and 2 400mm pallets with a maximum weight of 1 000kg, the pallets were stored with the 1 000mm side facing and the 1 200mm side in the depth of the racks.

What is mobile racking?

Mobile racking consists of special rails that are laid in the floor during construction.

Rails can also be retrofitted in existing rooms provided the floor is suitable by levelling the rails on the existing surface and pouring a 150mm reinforced slab. A low ramp is needed at the entrance. The mobile bases run on the rails and support pallet racking which is specially designed for use in a mobile application. The bases are



motorised and energy efficient. Maximum tonnage per base varies but should not exceed 360 tons. In larger stores mobiles are arranged in banks of up to 10 bases, each with its own moving aisle. The bases are controlled either by push buttons, remote control, or by an interface with the warehouse management system. An access aisle is created at the push of a button.

Safety measures include photoelectric beams down the length of each base and across the front of each mobile bank with additional emergency stops. To move one or multiple bases takes approximately one minute twenty seconds. Mobiles are designed to give lighting signals so that the lights come on only in open aisles. This results in energy savings as each light produces heat which must be removed by the refrigeration system.

The possibility of pallets breaking was removed by using a pal-

let support or saddle beams in the middle of each pallet slot. These were painted yellow to assist with pallet placement especially on higher levels and increase rack strength. Another challenge arose when packed fruit stores remained in use for extended periods.

Improved ventilation in the mobiles allowed packed fruit to be chilled and store temperatures were reduced to around 0°C. Frost heave, caused by moisture freezing under the floor, is not good for mobiles and recent installations have under floor insulation and heater mats to make sure this doesn’t happen.

The advantages of using mobiles in fruit stores have become apparent over the years. More expensive than “fixed selective” or “drive in”, mobiles can increase the practical capacity of a store by up to 75 or 80% while still giving immediate access to every pallet. If the total cost of a proposed fruit

store is divided by the practical pallet capacity the mobile option can be surprisingly competitive.

Recently, mobiles have been installed in smaller stores, three and two pallets in the height with capacities of less than 450 pallets. Moving aisles have been widened to allow for the use of counter-balanced trucks and pallet bays extended allowing the placement of three pallets on the longer 1 200mm side. Maximum pallet weights have increased to in excess of 1 300kg and storing five pallets in the height is now quite possible.

Barpro Storage are able to manufacture smaller systems locally in their Cape Town manufacturing facility which cuts costs and reduces lead times. The racking superstructure supplied by Southern Storage – Dexion is manufactured locally in Gauteng.

For more information contact Ron Bonthuys – ron@dexioncape.co.za or 021 552 0220.



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Check genset diesel injectors as fire risk rises

SOUTH Africans have been dismayed by a spate of destructive fires around the country, highlighting the need for diesel-powered fire pump systems to be at the ready and in good working order. Andrew Yorke, director at Germiston-based Reef Fuel Injection Services, says the drier season approaching in most provinces is once again raising the fire risk. Yorke notes that municipal fire services are often under-capacity, and new buildings increasingly require their own water storage tanks and pumping facilities in case of fire. "The problem is that the diesel engines driving these fire pumps stand idle for long periods," he says. "This is not good for the fuel or the engines, particularly the diesel injection systems. Now is a good time to have these checked and serviced."

Blockages or malfunctions in the fuel injector system could



Specialist repairs on a generator diesel injection system underway at Reef Fuel Injection Services.

mean that the engine does not start at all. Alternatively, it could mean significant underperformance of the pump and even engine damage and premature failure.

"Servicing the injector and fuel pumps is a low cost exercise..."

"A fully functioning water pumping system is vital for companies to respond quickly and effectively to fires, which can save mil-

lions of Rands in damage and avoid crippling business disruption," he says. "Servicing the injector and fuel pumps is a low cost exercise that can be carried out quickly by our qualified technicians. In fact, it should be regularly scheduled as an integral aspect of the company's safety plan."

In this servicing procedure, a technician checks and flushes the fuel pump and injectors, and tests the calibration. Components can then be repaired, if required. This should

ideally be done every six to 12 months, while the diesel engine itself should be started and run at least once a month.

Yorke also points out the seriousness of the damage that can be inflicted on a diesel engine by running it with a faulty fuel injection system.

"Water pumps and generator sets – unlike vehicles – immediately accelerate to operating speed when they are started up," says Yorke. "As a result, faults in the system can quickly cause considerable damage before they are detected. Such damage – which could extend to catastrophic engine failure – is much more expensive to repair than the cost of servicing the fuel injectors regularly."

"These simple checks will help ensure that the company's extensive investment in firefighting capacity is put to good use when the occasion demands it," he concludes.

New material could better protect soldiers, athletes and motorists

By University of Birmingham

SOLDIERS, athletes, and motorists could lead safer lives thanks to a new process that could lead to more efficient and re-useable protection from shock and impact, explosion, and vibration, according to a new study. Pressurized insertion of aqueous solutions into water-repellent nanoporous materials, such as zeolites and metal-organic frameworks, could help to create high-performance energy absorbing systems.

An international research team experimented with hydrothermally stable zeolitic imidazolate frameworks (ZIFs) with a hydrophobic cage-like molecular structure—finding that such systems are remarkably effective energy absorbers at realistic, high-rate loading conditions, and this phenomenon is associated with

the water clustering and mobility in nanocages.

Researchers from the Universities of Birmingham and Oxford, together with Ghent University, Belgium, published their findings in Nature Materials.

Dr. Yueting Sun, Lecturer in Engineering at the University of Birmingham, commented: "Rubber is widely used for shock absorption nowadays, but the process we have discovered creates a material that can absorb more mechanical energy per gram with very good reusability due to its unique nanoscale mechanism."

"The material has great significance for vehicle crash safety for occupants and pedestrians, military armoured vehicles and infrastructures as well as human body protection."

"Soldiers and police could benefit from better body armour and bomb suits, athletes might wear more effec-

tive helmets, knee pads and shoe insoles as the material is liquid-like and flexible to wear."

The reusability of the material, stemming from the spontaneous liquid extrusion, also enables the material to be suitable for damping purposes, meaning that it could be used to create vehicles with lower noise and vibration, as well as better ride comfort.

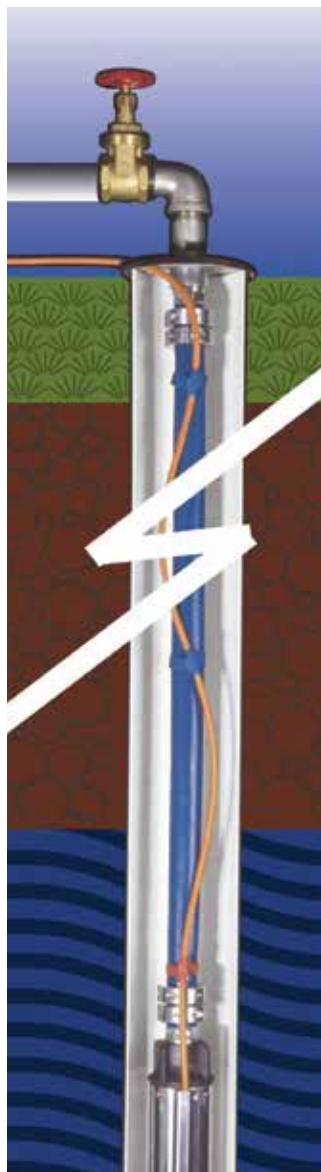
The material could also be incorporated into machinery to reduce harmful vibrations and noise—reducing maintenance costs. It could also be used to reduce the vulnerability to earthquakes of bridges and buildings.

Current state-of-the-art energy absorption materials rely on processes such as extensive plastic deformation, cell buckling, and viscoelastic dissipation—making it difficult to create materials that can provide efficient protection from multiple impacts.

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Employers need to take care, claims for workplace injuries can be repudiated if alcohol-related

By Rhys Evans,
Managing Director at
ALCO-Safe

IN South Africa at least 60% of road deaths are attributable to alcohol consumption according to a recent World Health Organisation Global Status Report on Road Safety. Furthermore, alcohol abuse has been shown to increase a person's risk of early death due to conditions such as heart or liver disease and disability. Thus, it's no surprise that medical aid and insurance providers generally reject claims for accidents that are alcohol-related, both in the workplace and on the road. This makes it important for employers to ensure that they're providing

a safe working environment by taking all measures necessary to prevent employee accidents that are caused by alcohol consumption.

The danger of alcohol in the workplace

Employees that report for duty under the influence of alcohol present a real danger to themselves, their colleagues and their employer.

The use of alcohol affects sight, speech, coordination and reaction speed, which is extremely hazardous when that person is working with machinery or driving a vehicle. According to the South African Labour Guide, 20% to 25% of injuries in the workplace involved employees

under the influence of alcohol.

Medical aid and insurance claims: the implications of alcohol induced-injuries

Who pays for medical expenses incurred where an individual is injured on the job? Ordinarily these costs would be covered by the Compensation Fund or the employer's insurance if the injury occurred during the scope and course of the individual's job. However, an employee can be disqualified from claiming benefits where drugs or alcohol are the primary cause of the incident. This means that employees could be in a position where their injuries are not covered; preventing them from getting the treatment they require returning to work or place them in

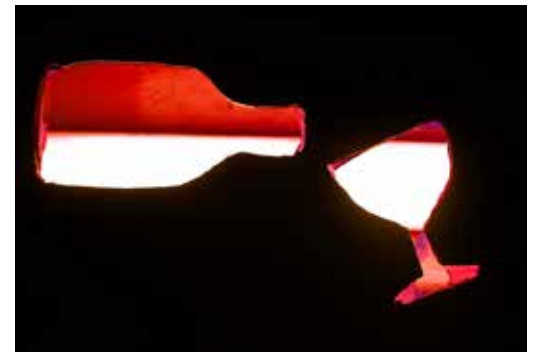
financial troubles. This in turn will impact their productivity and have a detrimental effect on the business.

Similarly, where an individual is involved in a road accident and tests positive for alcohol levels above the legal limit, most vehicle insurance providers will not pay their claim. Standard policy wording allows for a claim to be repudiated if the driver is "under the influence or exceeds the legal limit". A big mistake that people make is thinking that the insurance provider requires a breathalyser test or blood result to prove that they were driving under the influence. A number of considerations can be used to deduce that the individual was drinking, including the person's demeanour at the time of the accident, whether

they smelled of alcohol, the circumstances of the accident, where the person was before the accident and any reports of witnesses who may have seen the person drinking alcohol before the accident took place.

Ensuring a safe working environment

Without an enforceable alcohol policy that allows businesses to regularly check on employee sobriety, organisations open themselves up to risk. The workplace can play an important role in preventing alcohol and substance abuse if employers implement appropriate measures to prevent, reduce and remedy alcohol and drug related problems in the workplace. This starts with having a written policy on alcohol and



drug abuse that details the company's approach to keeping alcohol out of the workplace. To prevent intoxicated employees from entering the workplace in hazardous industries, organisations must conduct regular testing by means of breathalysers for alcohol or saliva testing for chemical substances. ALCO-Safe for example, is a major supplier of breathalysing and drug testing equipment

providing organisations easy access to the equipment they need in order to reduce alcohol related injuries that can lead to claim. In doing so, the organisation can protect its workers and minimise the chances of having a legitimate injury claim repudiated because it is alcohol-related.

For more information contact ALCO-Safe, Tel: 012 343 8114 Email: rhys@alcosafe.co.za

Safety light curtain installation boosts productivity

A safety light curtain installation for a Cape Town-based non-metallic mineral product manufacturer resulted in operator efficiency improvement of almost 20%. The manufacturer, IWT Abrasives, approached Electro-Mechanica (EM) in 2019 for a system that would improve safety around its hydraulic press, and simultaneously enhance press productivity. This installation has continued to prove itself, two years later.

IWT specialises in the weaving and impregnation of glass fibre rovings used in the reinforcement of cutting and grinding wheels. Its hydraulic press shapes flex-

ible material into the form of grinding disks. To operate the press, the operator uses two hand lever valves. This mechanism ensures operator safety, but it slows throughput. A further concern for IWT was the high energy consumption of the hydraulic press due to its constantly operating hydraulic pump, which also heated the oil, reducing its lifespan.

"IWT wanted a solution that would address these concerns while also improving operation productivity", explains William Cameron, EM Production Manager. "We proposed our ReeR light curtains to replace the two hand lever safety mechanisms, which



Following successful installation of ReeR light curtains IWT Abrasives has realised an improvement in operator efficiency by almost 20%.

automatically and swiftly halts any press movement if the light beam is interrupted".

IWT had previously

installed similar light curtains from EM on their Chiesa cutting machines. After doing some research on the

ReeR brand, IWT agreed that the positive market feedback, affordability and recognised quality made this the ideal solution for their requirements.

EM supplied all required products for the scope of work, which was undertaken by IWT engineers. The project consisted of removing the existing hand-operated hydraulic valves, simplifying the hydraulic circuit to a single solenoid-controlled valve and installing sensors to measure stroke movement and the force applied by the press. A new control cabinet to house the new PLC-based control system was supplied, as was a Human Machine Interface (HMI) to enable

operator feedback.

The combination of sensor feedback and light curtain protection enabled the press to perform its action autonomously and to automatically reset. This allows operators to prepare the next product for pressing safely and efficiently, contributing to increased production.

"The extra time gained has added a lot of value for IWT," says Cameron.

The use of a PLC into the solution created smarter press control, resulting in the aforementioned improvement in operator efficiency and reduced waste, as well as the energy savings. In terms of production, the biggest improve-

ment over the last two years has been quality consistency and subsequent waste reduction, since the PLC limits the force and movement of the press. The improved control provides the hydraulic pump the ability to switch off automatically when the press has been idle for a specified period, increasing system longevity.

"Safety in manufacturing enterprises is often overlooked due to the expected loss in productivity and complexity of adoption. However, safety solutions can be implemented in a phased approach, with minimal disruption and can lead to significant productivity returns," concludes Cameron.

When the shoe doesn't fit

By Predahni Naidoo,
Brand Manager at Sisi
Work Safety

OVER the years, women have been making up a greater proportion of the workforce, and this includes sectors that have typically been male-dominated such as mining, manufacturing and construction. This increase in women workers in more physical industries shines a spotlight on the need for female-specific safety gear, especially footwear. The typical approach of providing 'unisex' Personal Protective Equipment (PPE) does not adequately serve most

women, who are often left feeling uncomfortable in ill-fitting safety gear. The reason for this is that "unisex" safety footwear for example, offered by many brands, is predominantly a male mould modified with cosmetic touches to be passed off as a female offering. When it comes to footwear, a shoe that does not fit may negatively impact the wearer's productivity in the short-term and lead to injuries in the long-term.

The fallacy of unisex

As diversity and inclusivity continue to be important to business,

more women will be employed in industries that have typically been dominated by men. However, while hiring practices may have evolved, many organisations have not changed their strategy toward safety gear. The most common approach is to obtain one generic, supposedly 'unisex' range in a variety of sizes.

However, specifically with reference to footwear, this is not the most appropriate solution, since there is only a small portion of the female population that will suit a unisex shoe which is basically a men's last in a smaller size. Women's feet are

not only typically smaller than men's, they are also a different shape, and tend to be narrower. When women are made to wear shoes that do not fit correctly, this can cause problems.

Impacting health, wellness and productivity

In addition to causing discomfort on a daily basis, studies show that ill-fitting shoes cause foot pain and foot disorders, which can negatively impact on health in the long term. According to research, "footwear cannot fulfil its intended purpose if it does not fit the foot correctly". This means that ill-fitting safety

footwear may not effectively be fulfilling their role of keeping women safe.

When women are made to wear poorly fitted shoes, their feet often oscillate from side to side. Over time, the oscillation puts strain on the ankles, which leads to strain on the knees and subsequently strain on the hips. This can in turn cause back pain over issues.

In the case of women with narrow heels, the potential of slipping out of the boot is a daily risk, counteracting the sole purpose of wearing safety footwear. Most women require safety footwear designed specifically for the shape of

their feet to ensure they are both comfortable and secure.

Putting your best foot forward

Women's safety equipment needs to allow women to focus on their work rather than on how uncomfortable they are, it is also essential to actually ensuring safety and compliance.

When designing female safety footwear, it is also important to obtain feedback from the wearers of safety boots, whilst taking the different working environments into consideration. We at Sisi Safety Wear have conducted numerous inter-

views and worked with a specialist podiatrist in the industry to develop a range of safety footwear specifically designed for women and manufactured locally. Our range consists of a number of styles and sole units that take into account the functional and ergonomic requirements of the female workforce across different industries.

Women deserve both safety and comfort in the workplace, and with locally manufactured, women-specific safety wear ranges readily available, there is little excuse for organisations not catering to the needs of their female workforce.

Manufacturing output up by 87.9% y/y in April

Manufacturing production commentary from Thanda Sithole, FNB Economist.

AS expected, total manufacturing output (not seasonally adjusted) grew strongly by 87.9% y/y in April, following upwardly revised growth of 5.2% y/y (previously 4.6% y/y) in March.

Worryingly, seasonally adjusted manufacturing output, which is critical for the official calculation of quarterly real GDP growth, declined by 1.2% m/m in April after monthly average growth of 0.8% between January 2021 and March 2021. Although the monthly decline in seasonally adjusted production may not have been expected amid the manufacturing PMI that remained in expansionary territory, the decline of the business activity PMI (from 56.1 points in March to 50.8 points in April) had already signalled a

significant slowdown in monthly production.

At this stage, the contraction in monthly manufacturing output and the slowdown in monthly growth momentum in mining production (released earlier today) corroborate our view that quarterly real GDP growth likely moderated in 2Q20 following a better-than-expected out-turn for 1Q21.

Outlook

Overall, our near-term outlook for the manufacturing sector remains positive. The sector's growth performance should continue rebounding from a lockdown-induced lower base in 2020, and performance should benefit from easier lockdown restrictions and improving local and external demand.

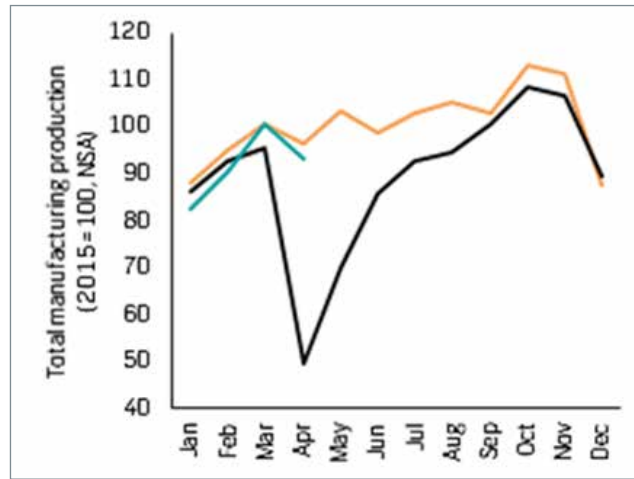


Figure 1: Total manufacturing production level.

The recent manufacturing PMI survey outcomes point to better monthly performance in May and over the near term. In addition, the extent to which the sector's inventories fell last year means that the sector could ramp up production to meet rising local and external

demand. We are, however, more concerned about the disruptive impact of continued load-shedding, which could curtail production.

Subsector performance in April 2021

Among the larger

manufacturing sub-divisions, the robust year-on-year growth in total manufacturing production was driven by the basic iron and steel, non-ferrous metal products, metal products and machinery sub-division, which grew by 160.3% y/y in April following growth

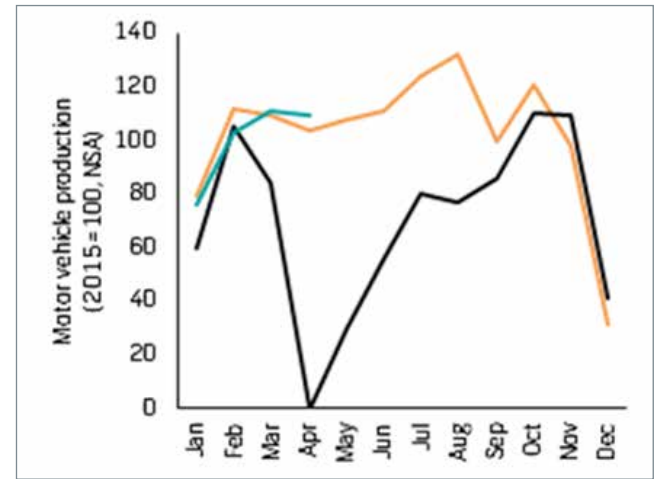


Figure 2: Total motor vehicle production

of 2.6% y/y in March. Production of motor vehicles, parts and accessories and other transport equipment grew strongly, with the motor vehicles' index measuring 109.7 compared to zero in April 2020 when stringent lockdown restrictions forced vehicle manu-

facturers to stop production.

Food and beverages production grew by 28% y/y, and petroleum, chemical products, rubber and plastic products grew by 36.2% y/y.

Source: Stats SA, FNB Economics

Recyclable cap with an innovative dosing mechanism

ALPLA has developed a cap for viscous liquids such as ketchup and mayonnaise which is made entirely of polypropylene (PP), making it optimally recyclable. Its innovative mechanism allows for controlled dosing and prevents unwanted dripping. The cap is compatible with standard bottles and can be produced cost-effectively.

Caps for viscous filling media like ketchup, mayonnaise and honey present manufacturers with certain challenges.

Ketchup bottles for example, dispensing its contents onto food too quickly and in too great a quantity, and

then dripping too. Manufacturers have therefore been paying particular attention to the cap dosing system for years. Various materials are used here, but they are problematic in terms of sustainability. With its new controlled dosing cap (CDC), ALPLA presents a cap that makes an impression in terms of its handling, dosability and recyclability.

Made entirely of one material

Many commercially available caps made of PP feature a valve for more precise dosing which is made of an additional, easily mould-



able material. This is usually silicone or a thermoplastic elastomer (TPE). This opens when light pressure is applied and the contents can flow out of the packaging. The valve then closes again when the pressure eases off. The disadvantage of this solution is that the use of a second plastic reduces the cap's recy-

clability. With silicone, the PET or HDPE recycling streams are contaminated, which is why this type of cap is increasingly forfeiting market acceptance. In contrast, the CDC does without a valve. It is made entirely of PP and is 100 per cent recyclable in the interests of a functioning circular economy.

Innovative dosing mechanism

Another advantage of the CDC is its intelligent dosing mechanism. Whereas other monomaterial caps either simply do without a mechanism or feature elaborately produced moving parts, the CDC makes use of a simple mechanism and the laws of physics. Squeezing the bottle creates a pressure difference inside the bottle. The filling medium is diverted into a screw within the cap, which it has to pass before making it to the opening. At the same time, high negative pressure is created.

When the pressure on the bottle is reduced, there is pressure compensation and the content is drawn back in by the suction effect without dripping. The principle is similar to that of a drinking straw.

The cap is no different to standard caps and meets all the market requirements. It is compatible with all standard bottles, allows for customer-specific adaptations and can be produced cost-effectively.

- Technology: IM
- Material: PP
- Cap: Screw cap with flip lid
- Bottle mouth: 38-400 thread, compat-

ible with standard bottles

- Recycle: Fully recyclable in the existing recycling streams (no silicone, no TPE)
- Usage which is familiar to the consumers
- Controlled, uniform dosing and emptying without any dripping
- Cost-efficient production, customer-specific adaptations possible
- Standard cap which meets the market requirements

Visit: www.alpha.com for more information.

Research predicts optical metamaterials will soon disrupt \$50 billion optics market

From corrective lenses to industrial, medical, aerospace, and other equipment, these novel materials are poised to make a disruptive impact.

OPTICAL metamaterials use carefully controlled nanostructures to manipulate visible light, enabling lighter and thinner optics for everything from eyeglasses to mobile phone cameras. The technology to design and manufacture optical metamaterials is rapidly maturing, making commercial adoption likely soon, according to Lux Research, a leading provider of technology research and innovation advisory services. The potential \$50 billion market ranges from corrective lenses

and consumer devices to industrial, medical, aerospace, automotive, and military equipment.

Lux's new report, "Innovation Digest: The Lux Take on the Future of Optical Metamaterials," explores the market readiness of optical metamaterials while identifying opportunities and challenges. A growing number of startups are forming, and large corporations are showing significant interest, including partnerships, investments, and product launches from Lockheed Martin, Intel, 3M, Edmund

Optics, Airbus, Applied Materials, and TDK.

"Optical metamaterials will impact niches within the lens market in the next year," says Anthony Vicari, Analyst at Lux Research and lead author of the report. "Lack of production infrastructure and of device designers familiar with the technology has held back progress so far, but design and production technologies have matured rapidly in the past few years."

Optical metamaterials are important to

the market over incumbents for these key reasons:

- Greater control over direction, transmission, and focusing of light on all major performance axes
- Ability to access novel capabilities including negative, tunable, and complex refractive indices
- Ability to combine multiple optical functions, such as higher-order image corrections, in a

single device layer, making for thinner and lighter products

"The total market for optical metamaterials will likely reach several billion dollars this decade," Vicari noted. "Optical metamaterials will begin to disrupt conventional optics in some markets soon, and they have the potential in the longer run to displace conventional optics entirely – representing a huge opportunity for materials and equipment companies to gain market share." While metamaterials are fundamentally a



design technology, optimized formulations and equipment can improve reliability, scalability, cost, and ease of design, and startups can address these needs better with large company partners. As adoption increases,

the equipment and materials markets for conventional optics will shift and likely decline

To download an executive summary of the report visit: www.luxresearch.com

Study: Half of US cosmetics contain toxic chemicals

By Matthew Daly

MORE than half the cosmetics sold in the United States and Canada likely contain high levels of a toxic industrial compound linked to serious health conditions, including cancer and reduced birth weight, according to a new study.

Researchers at the University of Notre Dame tested more than 230 commonly used cosmetics and found that 56% of foundations and eye products, 48% of lip products and 47% of mascaras contained high levels of fluorine—an indicator of PFAS, so-called “forever chemicals” that are used in non-stick frying pans, rugs and countless other consumer products.

Some of the highest PFAS levels were found in waterproof mascara (82%) and long-lasting lipstick (62%), according to the study published in the journal *Environmental Science & Technology Letters*. Twenty-nine products with high fluorine concentrations were tested further and found to contain between four and 13 specific PFAS chemicals, the study found. Only one item listed PFAS as an ingredient on the label.

The study results were announced as a bipartisan group of senators introduced a bill to ban the use of PFAS, or perfluoroalkyl and polyfluoroalkyl substances, in cosmetics and other beauty products. The move to ban PFAS comes as Congress considers wide-ranging legislation to set a national drinking water standard for certain PFAS chemicals and clean up contaminated sites across the country, including military bases where high rates of PFAS have been discovered.

The Environmental Protection Agency also is moving to collect industry data on PFAS chemical uses and health risks as it considers regulations to reduce potential risks caused by the chemicals.

Graham Peaslee, a physics professor at Notre Dame and the principal investiga-



Photo credit: Momo Africa.

tor of the study, called the results shocking. Not only do the cosmetics pose an immediate risk to users, but they also create a long-term risk, he said. “PFAS is a persistent chemical. When it gets into the bloodstream, it stays there and accumulates,” Peaslee said.

The chemicals also pose the risk of environmental contamination associated with manufacturing and disposal, he said.

“This should be a wake-up call for the cosmetics industry,” said David Andrews, a senior scientist at the Environmental Working Group, a Washington-based non-profit that has worked to restrict PFAS.

The products tested in the study “are applied each and every day by millions of Americans. It is critical that we end all non-essential uses of PFAS,” Andrews said.

The man-made compounds are used in countless products, including non-stick cookware, water-repellent sports

gear, cosmetics and grease-resistant food packaging, along with firefighting foams.

Public health studies on exposed populations have associated the chemicals with an array of health problems, including some cancers, weakened immunity and low birth weight. Widespread testing in recent years has found high levels of PFAS in many public water systems and military bases.

A spokeswoman for the U.S. Food and Drug Administration, which regulates cosmetics, had no immediate comment.

The Personal Care Products Council, a trade association representing the cosmetics industry, said in a statement that a small number of PFAS chemicals may be found as ingredients or at trace levels in products such as lotion, nail polish, eye makeup and foundation. The chemicals are used for product consistency and texture and are subject to safety requirements by the FDA, said Alexandra Kowcz, the council’s chief scientist.

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Cape Business News is always on the lookout for stories of companies that are shaping the Cape business landscape. If your company has a story to share, in these, or any other business sector, send your story to editor@cbn.co.za for consideration.

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Plastic pollution in the deep sea

By Geological Society of America

POLLUTANTS, including plastic, reach deep-sea fans through linked sediment routing systems, as well as from outside the associated catchment(s), via near-shore and shelfal currents (i.e., littoral cells), eolian transport, surface currents, and direct input from oceanic sources such as shipping and fishing.

A new focus article in the May issue of *Geology* summarizes research on plastic waste in marine and sedimentary environments. Authors I.A. Kane of the Univ. of Manchester and A. Fildani of the Deep Time Institute write that “Environmental pollution caused by uncontrolled human activity is occurring on a vast and unprecedented scale around the globe. Of the diverse forms of anthropogenic pollution, the release of plastic into nature, and particularly the oceans, is one of the most recent and visible effects.”

The authors cite multiple studies, including one in the May issue by

Guangfa Zhong and Xiaotong Peng. Zhong and Peng were surprised to find plastic waste in a deep-sea submarine canyon located in the northwestern South China Sea.

“Plastic is generally considered to be the dominant component of marine litter, due to its durability and the large volume produced,” write Kane and Fildani. “Nano- and microplastics are a particularly insidious form of anthropogenic pollutant: tiny fragments and fibres may be invisible to the naked eye, but they are ingested with the food and water we consume and absorbed into the flesh of organisms.”

One of their vital questions is, “If some plastics can survive for >1000 years in terrestrial environments, how long do they last in ocean trenches that are kilometres deep, dark, cold, and at high pressure? How long does it take microplastic to break down into microplastics and nanoplastics in the deep sea?”

“While it is incumbent on policy makers to take action now to protect the

oceans from further harm, we recognize the roles that geoscientists can play,” write Kane and Fildani. That includes using their deep-time perspective to address the societal challenges, their understanding of the present-day distribution on the seafloor and in the sedimentary record, using geoscience techniques to record the downstream effects of mitigation efforts, and to predict the future of seafloor plastics.

In summary, they write, “We understand ... the transient nature of the stratigraphic record and its surprising preservation, and the unique geochemical environments found in deep-sea sediments. Our source-to-sink approach to elucidate land-to-sea linkages can identify the sources and pathways that plastics take while traversing natural habitats and identify the context in which they are ultimately sequestered, and the ecosystems they affect. This will happen by working closely with oceanographers, biologists, chemists, and others tackling the global pollution problem.”

Supercomputer helps research on tyre and road wear particles

CONTINENTAL, the University of Southern Denmark (SDU) and the École Normale Supérieure de Lyon in France have received a grant worth 43 million core hours of supercomputer time for their joint basic research project.

The project, which aims to drive fundamental understanding of tyre and road wear particles, has been in existence since 2014. Its goal is to learn more about the decomposition of rubber polymers to better understand the wear

behaviour of tyres.

The associated simulations of the behaviour of complex polymer structures are very time-consuming. For this reason, the project partners applied for the Partnership for Advanced Computing

in Europe (PRACE) initiative. With the digital computing power granted, they now have the opportunity to perform polymer simulations in greater depth and on a broader scale.

“With the help of the supercomputer, we

can for the first time perform comprehensive simulations on molecular level,” says Dr Andreas Topp, Head of Materials, Process Development and Industrialization of the Tires business area at Continental.

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The warmth of long Covid nights

THE winter wonderland we see on Christmas cards," dreamed Luke the Dude, "is a world of snow, warm coats and Jingle Bells – at a time when we have sunny skies, Chevrolet and Covid cops on the beaches.

"The seasons are reversed now, but what about this: On the evening of the shortest day and longest night of the year, it was so warm that the good lady and I were swatting mosquitos off our T-shirted arms."

"Not so much of the Jingle," worried Jon the Joker, "make mine a double please."

"Double Bells coming up!" beamed The Governor (these are difficult days) while nodding to the barman. "How about you, ladies and no doubt gentlemen, shall we toast the winter sunshine?" And so we did.

Such is life on a Saturday evening around the fire at the local Fine Fare and Wine, where beer is optional if you must. Due to Covid rules the numbers of after-dinner conversationalists were somewhat reduced, which had no influence on the good cheer.

Luke the Dude, however, persevered testily: "The point I am trying to make, is that we are feeling for ourselves the facts of earth warming. So much for calling it a hoax – as does Donald J. Trump among his collection of conspiracy fantasies, 'windmills kill everything' coming to mind."

Luke looked around challengingly. His challenge was met. "I do not agree," declared Big Ben. "Trump was right about sleepy Joe being too old to pass a brain test ..."

"Ah yes," smirked Jon the Joker, "Trump's famous cognitive test. He

amazed the doctors by remembering the words Person, Woman, Man, Camera, TV. Nobody has done that before!"

"Biden has not done it!" trumped Big Ben.

"No, he hasn't," sighed The Prof, "and neither have I. But if you don't mind, dear boy, let's get a second opinion on Joe Biden, next to Trump's. From someone who also has no reason to like Biden and is likewise a politician, albeit more experienced than Trump.

"After last month's Biden-Putin summit, that person opined that some media in Russia and America have it wrong about Biden being too old and frail for the job. Speaking to students at a Russian business school, he said, and I believe his exact words were:

'Mr Biden is a professional, and you need to be very careful when working with him so as not to miss something. He himself does not miss a thing, I assure you, and this was absolutely clear to me. Let me say it again: he is focused, he knows what he wants to achieve and he does it skilfully, and you can instantly sense it.'

"That is the opinion of, wait for it ... President Vladimir Putin, recorded by CNN's Diplomatic Editor, Nic Robertson.

The Prof chose to respond like an economist: "That's one way of looking at it," advised he, "on the other hand, Trump is still in Putin's pocket so there really is only one side and both of them are on it."

"Ha!" expectorated Jon the Joker, "Margaret Thatcher wanted a one-handed economist and that's why!"

The usual conspirators were catching up

post-dinner at Fine Fare and Wine, where palates are pleased and facts are found.

"Enough of politics," insisted Miss Lily, "if you want to have something controversial, how about our cricket team winning some tests again!"

"That's not controversial, that's great!" enthused Colin the Golfer.

"We're talking about South Africans," educated Miss Lily. "There's always controversy. Have you forgotten about Quinton de Kock?"

"What?" laughed Colin, "not taking the BLM knee? Man's entitled to his opinions, isn't he? And he is a man for standing, and standing alone!"

"I do not agree," contradicted Big Ben. "He is a leader in the team; not so long ago he was the captain. I say he should set an example. They all unite in making a statement that 'black lives matter' but he refuses. What does that say?"

"This business did now become a controversy and maybe that could have been avoided," considered Irene the Queen. "He is even being criticised for keeping his reasons to himself and for having his own opinion."

"In that," noted Bill the Beard factually, "he has the support of his teammates. Lungi Ngidi, an energetic protagonist for the pro-BLM stand, says unequivocally that everyone's entitled to his or her own choice and that the team is united in playing for South Africa. And you could see that in their spirit on the field and how they congratulated De Kock when he top-scored at 141 not out,

OPINION

ON THE CONTRARY



Pieter Schoombee

winning Man of the Match."

"But what is De Kock saying with his stropiness," insisted Big Ben. "Does he not think black lives matter?"

Silence. Only The Prof sucking his cold pipe. Then he pondered: "Yes ... I think I see it now. We have a profound misunderstanding here, caused by the absence of all the relevant information. Believe me, Benjamin my dear boy, nobody here disagrees with the plain English meaning of the words 'black lives matter'. I am convinced that it's also true of all our national sports teams.

"The missing information is that the words 'Black Lives Matter' are also included in the names of organisations fighting for goals quite beyond the plain meaning. So please, take that into account next time you start a war of words."

With that The Governor called lock-up.

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Creating an economic growth plan

Fanie Brink, Independent Agricultural Economist spells it out.

THE ANC government's socialist ideology will destroy the economy and the country within the next 3 to 4 years and the final countdown has already begun.

This ideology has been responsible for virtually no economic growth for the past 26 years and the still unlimited increase in the gap between income and the misappropriation of taxpayers' money of the government that was directly responsible for the rising budget deficits, government debt, greater poverty, famine, unemployment and inequality

Socialism has proven worldwide in the past that it cannot create any economic growth and has been rejected by virtually all the countries that have accepted capitalism as the only system that can create eco-

nomical growth and prosperity. Even China, which also started walking this path years ago, has grown by an average of 10% per year and even had to cool its economy by lifting all new infrastructure development. China has continued to grow by 6% during the ensuing low economic growth cycles in the world and the general expectation is that the country will grow by between 8% and 9% this year and will become the biggest economic power in the world within the next few years.

After 1994, the ANC decided to transform the economy based on a policy of a National Democratic Revolution stemming from the organisation's Freedom Charter, which revolved around two divergent views that the "Radical Economic Transformation" could be brought about by measures such as nationalisation, where political control would be transferred into economic power, or via a more liberal path that would

have involved the promotion of macroeconomic development and the growth of company earnings.

However, the ANC made the biggest policy mistake of its entire existence when it rejected the only other choice that could create economic growth in favour of "radical economic transformation" as the basis of its future policy. The right choice would have made a dramatic difference to the economic development in South Africa instead of the choice that led to the irreversible destruction of the economy that the country is experiencing today.

The capitalist economic system was not the cause of the severe socio-economic decline before 1994 that forced the economy and the country to its knees, but the policy of separate development of the previous political dispensation. Capitalism today is still the only economic system that can create economic growth as it is based

on internationally accepted and most basic economic principles.

The ANC government never understood and accepted that economic growth is created only by the producers, manufacturers, traders, private service providers and others in the various industries on the supply side and private consumption expenditure, capital formation and net exports on the demand side of the economy, as proven every quarter by Statistics SA, which is driven by the profit motive that was the biggest single reason for the destruction of the economy.

The ANC government will therefore have to deregulate the economy as far as possible and limit its interference in the economy to the creation of a political and economic environment that will be conducive to the creation of economic growth by the private sector which will also be the only solution to the serious economic and social problems of the country,

MDBs climate finance rose to \$66 bn in 2020, joint report shows

CLIMATE finance committed by major multilateral development banks (MDBs) rose to a total of \$66 billion last year from \$61.6 billion in 2019, according to the 2020 Joint Report on Multilateral Development Banks' Climate Finance published recently. Of this, 58 per cent – or \$38 bil-

lion – was committed to low- and middle-income economies.

The total climate co-finance committed during 2020 alongside MDB resources was \$85 billion. Together, MDB climate finance and climate co-finance totalled more than \$151 billion. The amount of private direct

mobilisation stood at \$5.9 billion.

Accelerating the transition to low-carbon and climate-resilient economies through climate finance is a key element of the MDBs' effort to align their activities with the objectives of the 2015 Paris Agreement to keep global warming well

below 2°C, with efforts to limit it to 1.5°C, along climate-resilient development pathways. In the past six years, the MDBs have jointly committed a total of \$257 billion in climate finance, of which \$186 billion was directed at low- and middle-income economies.