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## Cape Town's Water Resilience Plan

CAPE Town Executive Mayor Patricia de Lille has announced the city's Water Resilience Plan. A procurement plan is already underway for a number of augmentation schemes, including desalination, water reuse and groundwater extraction.

Various programmes, each with associated initiatives, have been established over the emergency phase, which will run until the end of June 2018, and tactical phases, which will run from July next year onwards. These initiatives build on the drought response initiatives since late 2015, which include pressure reduction, increasing restrictions, and heightened enforcement.

The city's intent is to drive down collective usage to 500 Ml/day as well as to ensure that there is always at least 500 Ml/day of water in production.

The plan involves ways to augment the system using a number of technologies and sources by up to the target 500 Ml/day over the months ahead. This is a significant increase compared with the relatively small schemes that were being planned up until May this year.

### Water augmentation schemes

The new solutions to augment Cape Town's water supplies are based on a Request for Information/Ideas (RFI) released by the city.

Over 100 submissions were received, proposing solutions including desalination at various scales, inclusive of container solutions, barges and ships, water reuse technology at various scales, aquifer and borehole options, engineering and infrastructure options, and water demand management options, among others.

The below figures per technology reflect schemes at full production. Commissioning dates vary according to staging of procurement and complexities related to installation and site preparation. Installations are contingent on relevant licensing approvals.

The procurement and commissioning of multiple new augmentation schemes in rapid time will be one the largest and most complex expenditure programmes in the City of Cape Town's history.

To ensure success, approximately 80 new staff (inclusive of contractors and permanent staff) will be hired in the coming weeks to assist with delivering the full extent of the envisaged projects.

Continued on P2



Reverse Osmosis (RO) units at Knysna desalination plant. Credit: Veolia Water.

Technologies	Total Ml/day per technology	Locations
<b>Immediate and first trench</b>		
Groundwater extraction	100	Atlantis and Silverstroom Cape Flats, Cape Peninsula, Hottentots Holland
Desalination - land-based containers	50	Koeberg, Silverstroom, Woodbridge Island, Granger Bay, Hout Bay, Red Hill, Strandfontein, Monwabisi, Harmony Park
Desalination - barge	50	Cape Town Harbour
<b>Second trench</b>		
Water reuse	50	Zandvliet Wastewater Treatment Works, Bellville Wastewater Treatment Works, Fisantekraal Wastewater Treatment Works, Potsdam Wastewater Treatment Works, Cape Flats Wastewater Treatment Works, Macassar Wastewater Treatment Works
Desalination - land-based permanent	50	Cape Town Harbour
<b>Extreme Trench</b>		
Desalination - marine-based	200	Cape Town Harbour Gordons Bay
<b>Total</b>	<b>500</b>	

## Street Sleeper wins gold



RECYCLING used billboards made from end of life PVC banners not only help keep thousands of homeless city dwellers warm and dry, but has now also received the recognition it deserves from South Africa's plastic recycling fraternity by walking away with a Gold Award in the category "Novel and Artistic Products" during the South African Plastic Recyclers Organisation (SAPRO) Best Recycled Product of the Year Awards held in Johannesburg recently.

"Street Sleeper is a Cape Town based initiative that uses innovation to tackle the social and environmental challenges facing the homeless community. We upcycle PVC advertising billboards destined for landfill into survival sleeping bags," explains Oliver Bain, the founder of Street Sleeper.

Since 2014, Oliver and his team has made more than 8 000 sleeping bags (1 500 last year alone). Each bag uses 4m<sup>2</sup> of end of life PVC banners thereby upcycling more than 32 000m<sup>2</sup> (or 13 tons) of PVC billboards. Bags are distributed through feeding centres, like-minded businesses and volunteers who wish to actively engage with their homeless neighbours.

SAPRO Chairman, Rudi Johannes, highlighted that the empathetic nature of the product and the volumes of goodwill left the panel of judges suitably impressed. Delanie Bezuidenhout, CEO of the Southern African Vinyls Association (SAVA), accepted the Gold Award on behalf of Oliver and his Street Sleeper team. Delanie emphasized that the Street Sleeper project is deserving of this accolade and that SAVA is honored to be a proud supporter of this project that transforms the negative impact of waste into immediate relief for those living on the street whilst at the same time promoting social upliftment through dialogue and storytelling.





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# PSG'S most liquid investment

STELLENBOSCH-based PSG Group – now a R62bn investment house with holdings in Capitec Bank and private education juggernaut Curro Holdings – has traditionally been very careful to tap new opportunities.

The company – headed by Jannie Mouton – well known for meticulous investment processes and a strategy built around backing ventures that could at worst lead to a small loss but at best lead to huge returns.

In fact, both Capitec Bank and Curro – now collectively worth close to R120bn in market capitalisations – were backed with relatively small sums by PSG as fledgling ventures.

With this in mind, PSG's surprise decision to take a punt on the water services and reticulation sector could be a development to keep close tabs on in the year ahead.

In a deal that looks out-of-synch with PSG's usual endeavours, subsidiary PSG Alpha has – via a controlling shareholding in power management special-



South Africa's largest desalination project - 15 Ml/day Mossel Bay plant, under construction in 2010. Photo credit Royal HaskoningDHV.

ists Energy Partners – bought into GrahamTek, a small Strand-based water desalination specialist.

The investment, from what CBN can garner, is tiny by PSG standards. But there are hopes that PSG and Energy Partners can bring the requisite skills and capital that will turn GrahamTek into a multi-billion rand business.

The deal coincided with the Western Cape's water shortages reaching crisis point, and GrahamTek – at the time of writing – was still waiting to hear whether its desalination tenders for the City of Cape Town were successful.

Desalination is key component of the City's water shortage alleviation plans with dams likely to run out of drinkable water by mid-May this year.

A number of small scale desalination plants have been built along our coast with the largest being the 15 Ml/day plant in Mossel Bay, built by Veolia Water in 2010.

But it seems the real

thrust for GrahamTek is the potential for securing international business.

### Modular RO plants

GrahamTek recently unveiled a locally designed and assembled modular sea water, reverse osmosis, desalination plant for deployment in Saudi Arabia. Each of the modular plants has the capacity to produce 3 Ml/day of potable water from sea water. The big advantage is that the plant can be up scaled to virtually any size.

GrahamTek CEO Julius Steyn said it was a big achievement for a South African company to present the world with locally developed technology relevant for the world's biggest desalination and water treatment hubs.

"We were earlier this year contracted to do consultation and optimisation work on the four largest desalination plants globally."

He pointed out that these Saudi Arabian plants produce more than 4 billion litres of water per day.

"The GrahamTek engineers identified opportunities to reduce the cost of water production by more than 20% and to improve the reliability of the plants in the process."

Steyn said that based on the successes achieved, the Saudi Arabian client asked GrahamTek to design a modular desalination plant optimised for their local conditions.

He disclosed the company was also busy with contracts in India and Ghana.

With GrahamTek set to score from international tenders, it seems PSG will play a key role in 'corporatising' the business.

GrahamTek, which has 20 years of experience in desalination and waste water treatment, was recently restructured from a family-owned business into a corporate entity with a firm focus on the international market.

The local angle is that Steyn reckoned the experience gained in Saudi Arabia would be very valuable to the rapid deployment required to solve the Cape Town crisis in a timely manner.

"Cape Town has amidst a major water crisis the opportunity to not only provide long-term water security for the region, but also to develop a sustainable water economy with global reach."

But Steyn cautioned that the capital cost of sea water desalination plants are substantial. "If financed over the

useful life of the plant however, which is typically 20 years, water can be procured by the city at R12 to R18 per kilolitre, which is comparative to what users pay on average in the city."

PSG CEO Piet Mouton said the combination of PSG as financial partner, Energy Partners as project developer and GrahamTek as sea water desalination expert made for a credible team which could make a significant contribution towards increasing the city's water supply in cooperation with the City and other role-players.

GrahamTek's 'technology' harks back to the late nineties when company founder William "Koerie" Graham introduced the 16" Reverse Osmosis technology in water treatment.

Although many doubted Graham's technology, the 16" system is now in use in some of the largest desalination plants in the world.

Basically GrahamTek's reverse osmosis process requires a mobile plant that that costs around \$3m (R42m) to set-up. The modular plant – which has a life expectancy of around 25 years - can produce 3 Ml of fresh water a day. It takes about ten weeks to set up a single plant.

GrahamTek has already moved a pilot plant from the company's premises in the Strand to fruit exporter Capespan's warehouse at the Victoria & Alfred Waterfront.

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## Cape Town's Water Resilience Plan

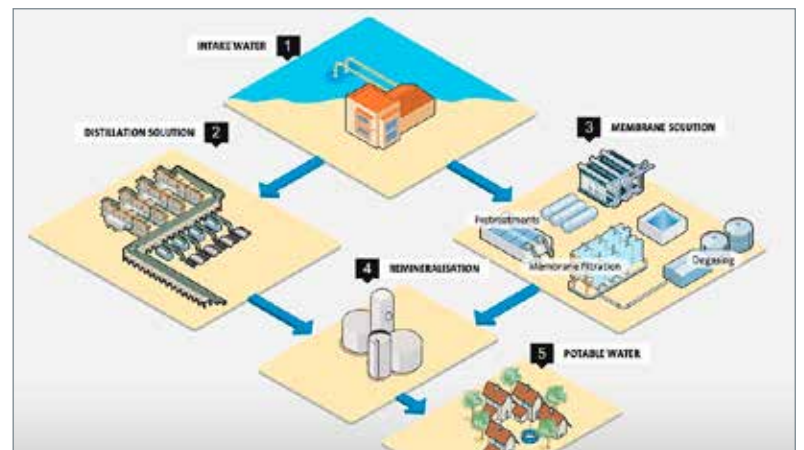
Continued from P1

A command hub will be established in the Civic Centre to allow for co-location of the full team.

### Cost implications

"The road ahead is going to be very challenging. The city is throwing every available resource at ensuring that acute water shortages are avoided. Building water resilience is the number one priority of the city administration.

"I am confident that we have started a journey that will result in an improved public



Typical desalination plant layout. Source: Veolia Water.

understanding of water, in which risk is better understood and

planned for, and where we can more comfortably adjust to shocks

and stresses as they relate to water," concluded De Lille.

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# Pioneer gets saucy, Rhodes has money for jam

CAPE TOWN-based consumer brands giant Pioneer Foods – which owns household favourites like Sasko, Bokomo, Liquifruit, Safari and Weet-Bix – appears to be looking forward to 2018 with some relish.

Pioneer recently opted to acquire the remaining shareholding in the long-standing Heinz SA joint venture from international food brands giant Kraft Heinz.

This means Heinz Foods South Africa – which distributes iconic sauces, soups, noodles and baked beans – will become a wholly owned subsidiary of Pioneer Foods.

Pioneer CEO Tertius Carstens explained that by acquiring full ownership of Heinz Foods SA Pioneer could look forward to the further

growth and development of the portfolio. He said this included a range of number one or two brands in their respective categories.

The transaction will see Pioneer enter into a two-year agreement with Kraft Heinz for the manufacturing and distribution of Heinz tomato sauce products.

Pioneer Foods will also distribute other sauces and condiments – like HP & Lea Perrins – and certain other Kraft Heinz products. “We will continue to work with Kraft Heinz to support the expansion of the Kraft Heinz brands in South Africa.”

Felipe Guimarães, the MD of Kraft Heinz Middle East and Africa, reckoned full ownership of the joint venture was an excellent opportunity to leverage

Pioneer Foods’ existing scale and platform in South Africa to grow the business further.

The transaction is expected to close in the first quarter of this year, pending regulatory approval.

Interestingly, the Heinz stable of products also includes the Wellington’s range of sauces and condiments, the John West range of canned seafood products as well as the frozen prepared-meal brands Today and Mama’s (mainly meals, pies and pastries).

Although the deal makes sense from a structural point of view, Pioneer certainly will still have their work cut out to secure succulent returns from Heinz SA. In the last set of financial results Pioneer reported that Heinz’s volumes lagged expecta-

tions and an the inability to adjust its cost base to this volume reality meant the venture posted a “poor profit performance”.

Specifically revenue was down 1% to R375m with profit after tax swinging R27m into the red after previously showing a profit of R5.9m.

While Pioneer is pushing to restore fatter margins at Heinz SA, the progress of the group’s fast growing rival in Rhodes Food Group – headquartered in neighbouring Groot Drakenstein – will also bear close scrutiny in 2018.

Rhodes, while not nearly as big as Pioneer, has successfully carved itself a food brands niche by making a series of smart acquisitions.

In the year to end

September Rhodes increased turnover by 11% to R4.6 billion with strong growth in South Africa and the rest of Africa being offset by lower international revenue.

The company owns brands like Rhodes, Bull Brand, Magpie, Squish, Bisto, Hinds and Pakco.

Rhodes canned fruit hub had to deal with increasing costs as the drought in the Western Cape intensified.

What was impressive, though, was CEO Bruce Henderson reporting that the fresh foods division grew sales by 30.1% with continued excellent growth in the pie category across all sales channels and good growth in ready meals.

He added that Rhodes’ brands gained market share in key

product categories – pointing out that the Rhodes brand is the country’s market leader in canned pineapple and canned tomato with number two positions in canned fruit, jam, canned vegetables and fruit juice. Bull Brand is the market leader in corned meat.

Notably, Rhodes has undertaken record capital expenditure of R487 million in upgrading production capacity and efficiency in the past year.

Projects included the construction of a baby food and flexible packaging factory, completion of the three-year upgrade of the Bull Brand facility and increasing production capacity at its fruit juice, fruit products, vegetable and pie facilities.

But Henderson cautioned around growth

prospects in 2018, noting the continued drought in the Western Cape is expected to impact costs owing to poorer quality fruit. This, he said, would result in lower yields and higher labour costs.

Capital investment of R350 million is planned for 2018, and major projects include the consolidation of certain production facilities that were recently acquired, capacity expansion at the pie and bakery facilities as well as the installation of a clear juice concentrate plant at the Groot Drakenstein production hub.

Both Rhodes and Pioneer have a lot on their respective plates, and it will be fascinating to see which company serves up the richest fare to shareholders in 2018.

# Bountiful harvest for C2C

COAST2COAST (C2C), a Steenberg-based investment company headed by former accountant Gary Shayne and banker-turned entrepreneur Cris Dillon, has become an acquisition machine.

Since its formation in a decade ago C2C has facilitated around 60 deals that are collectively worth more than R27bn.

C2C first came to prominence in 2008 when it founded health care brands business Ascendis, which then embarked on a slew of acquisitions. Today Ascendis – which has local and international operations – is listed on the JSE and carries a market value of some R7bn.

But C2C has lately been making its mark with a new venture called Bounty Brands – which focuses on the fast moving consumer goods (FMCG) sector. Like Ascendis C2C has guided Bounty along a very rapid acquisition path locally and (more recently) abroad – so much so that the company now has its headquarters in London and is tipped for a listing on the London Stock Exchange.

Bounty was

launched in 2014 as an investment vehicle to target growth drivers in consumer goods sectors which offered above-average growth and were ‘fragmented’ enough to allow for acquisition of leading brands.

That year Bounty acquired Vans, essence, Catrice and Table Charm.

By 2015 Bounty made its first incursion offshore when it expanded into Central and Eastern Europe by acquiring Sonko, a major player in rice and dry bread products in Poland.

It also supplemented its local investment bouquet with brands like Annique Health & Beauty, Jeep and Liberty Foods.

By 2016 Bounty Brands really started to build scale – acquiring houseware brands Tuffy, Goldenmarc and Genesis as well as Footwear Trading (which has local licenses for Diesel, Fila, Levis and Jeep).

This year was a watershed year for Bounty with the International Finance Company (IFC) investing \$22m in the company to support expansion endeavours. It also saw the corporate entity

Bounty Brands Holdings Plc registered and incorporated in England.

The acquisitions this year have built considerable offshore scale – most notably in Central and Eastern Europe via specialist food businesses Unitop, Bez Gluten and Profi in Poland as well as kitchen and cleaning products specialists Stella Pack.

C2C – as witnessed at Ascendis – are adept at integrating select businesses and processes to reduce costs and improve efficiencies.

The company said the increased scale of Bounty allowed the

underlying operations to benefit from professional shared services and a dedicated portfolio improvement team aimed at extracting value through the continuous improvement of operational processes.

While it seems Bounty’s acquisition thrust is by no means over, it is interesting to note that C2C also started making inroads into the Australian market via Marlin Home.

Earlier this year Marlin snapped up Melbourne-based container maker Décor, which is best known

for its lunch boxes and cool-drink bottles.

According to Australian media reports, Marlin is eyeing at least four more Australian brands and plans to list on the Australian Stock Exchange within the next few years.

So at the end of 2017 the scorecard shows that C2C – which started humbly in quiet corporate surrounds in Cape Town’s southern suburbs – boasts total Group revenues of over R20 billion and operating profit of more than R3 billion.

With C2C reiterating its mission to “boldly and innova-

tively acquire and develop great businesses at fair value”, it seems 2018 could be another strenuous year of deal-making across all in-

vestment platforms. Bounty, will most likely, be the busiest in the run-up to the much mooted stock exchange listing.



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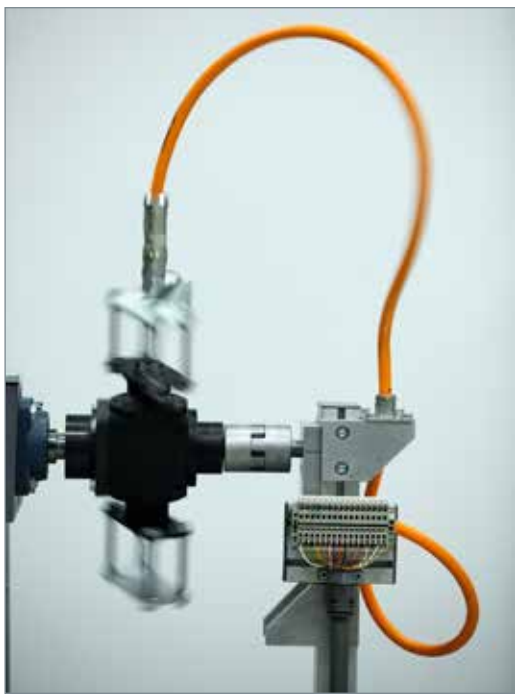
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# Everything revolves around hybrid cables

INDUSTRIAL processes are being automated at ever-increasing speeds, making production procedures more and more efficient. At the same time, a trend towards both decentralisation and merging previously separate tasks in central concepts has emerged here. Component manufacturers such as Hengstler GmbH and the Lapp Group are also supporting these trends. Innovative interface solutions for rotary encoders are making servo motors even more efficient, compact and reliable.

The vision for "Industry 4.0" in the factory, which aims to achieve maximum flexibility and efficient production with a batch size of 1, would not be possible without digitisation. This kind of smart factory can only work if machines and parts act more and more independently, communicating with each other via the network. Servo drives play an increasingly important role here. They have become an integral part of networked and flexible production. Important parameters such as position, speed, vibration or temperature can be transmitted using digital interfaces for communication between motors and controllers. So the market require-



*With central drive solutions, the trend is moving towards single-cable solutions that transmit power and data on the position and speed of the motor.*

ments for manufacturers of engines and systems are increasing continuously, and the focus is on slashing costs, saving space, easy implementation and optimum performance.

Hengstler GmbH has now launched the ACURO@link interface, which, according to Hengstler's calculations, guarantees a saving of at least 50% of the slots, a reduction in the setup costs and an increase in machine safety. All of the motor feedback communication is accomplished via a specialised hybrid

cable designed by the Lapp Group.

Hengstler calls the technology a 'Single Cable Solution', an innovative combination of the high-performance ACURO AD37 rotary encoder and the new ACURO@link open interface.

The Lapp Group has developed two custom-fit hybrid cables tailored to the ACURO@link digital interface: the ÖLFLEX® SERVO FD 7DSL and ÖLFLEX® SERVO 7DSL. With this solution, both power and data are transmitted

via one shared cable. This also applies to signals from other sensors (for instance the temperature sensor), which are integrated into the digital motor feedback protocol. The FD version features a very heavy-duty PUR sheath, which makes it highly suitable for use in guide chains. By contrast, applications in which the cable is laid in a fixed installation are more suited to the lower-cost PVC version. Polypropylene (PP) is used universally to insulate the conductors. Up to 20% can be saved by using PP rather than PVC here. "Lapp can contribute its expertise in cables for torsion applications and offer types that meet the demanding requirements in this field," explained Lucas Kehl, Head of Product Management (Cables) at Lapp.

ACURO@link can support high-performance motion control due to its high transmission rate of up to 10 MBd and its data exchange rate of up to 32 KHz. In addition, the transmission of complete position data means that the interface features extremely high electromagnetic compatibility (EMC). This combination of properties is unique on the market. We can also integrate motor cables up to 100m in length.

Only one cable is now required for both power and data, making the separate rotary encoder cable and connector obsolete, so there is huge potential for savings here. Particularly for smaller drives, the relative cost structure for a feedback cable and an M23 connector should not be underestimated. The installation has also been simplified. What is more, it is important that cables suitable for energy chains and robot applications have low space requirements, especially as conventional servo and rotary encoder cables must be kept a minimum distance apart due to issues relating to electromagnetic compatibility.

# Will Much Asphalt be AECI's (S)tar performer?



*Much Asphalt new Spray Pave converter plant.*

EXPLOSIVES and chemicals giant AECI clearly wants to hit the tarmac running in 2018 after making a bid to acquire Cape Town-based Much Asphalt for R2.2bn.

Much's products are used in the construction and maintenance of all types of roads, airport runways, parking facilities, harbour quays, dam linings and racing tracks.

The deal is a somewhat surprising strategic diversion for AECI with some observers arguing that a building supplies company like Durbanville-based Afrimat – which produces aggregates for the roadworks – might be a more natural suitor for Much. In truth, Much might be too big a target for Afrimat – which has tended to follow a conservative approach to acquisitions.

Aside from operational diversity, Much will definitely move the needle at AECI. Much is a sprawling operation and the only independent asphalt producer with a national presence.

It also seems AECI very carefully stalked Much. The group said Much had been subject to a rigorous due diligence process over a three month period and had displayed good earnings growth over last three years at a rate above 10% a year.

Most significantly, the acquisition comes at a time when the South African National Road Agency (SANRAL) has announced plans to expand road network from 22 000km to 25 000km. SANRAL has also allocated a hefty R37bn to upgrade and maintain the national road network.

That means there is some importance to AECI pointing out that Much held installed production capacity that is equivalent to around 50% of the total South African asphalt market.

Much generated revenues of approximately R2 billion and profit after tax of R181 million in its last financial year. AECI also reckoned the company's cash conversion of profits was good.

Much's production in 2016/17 came in at 2,3m tons of hot mix asphalt from 18 static asphalt facilities, three static emulsion and modified binder factories, four mobile asphalt plants and a bitumen convertor.

AECI added that Much had developed state-of-the-art technology for automation, operation and process control of its asphalt plants; and was regarded as a leader in processing, screening and use of recycled asphalt to maximise produc-

tion yields.

The company also had the ability to create new products in line with evolving customer requirements.

Much develops new products at its own laboratories in Cape Town and Benoni.

Explaining the diversion into asphalt, AECI – which revolves mainly around explosives for the mining sector and chemicals (supplemented by plant and animal health as well as water solutions and food) – said its growth strategy involved expanding into new areas of business.

The group stressed that Much presented a strong investment case – most notably a market-leading position with long-established customer relationships, a robust order book and project pipeline as well as a highly experienced management team.

AECI believed there was also potential to extract benefits by combining supply chains, geographic networks and best practice in complex, heavy industrial manufacturing processes.

No doubt, the developments around this major acquisition for AECI could be one of the big stories to follow in the Western Cape business sector in the year ahead.

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# Double-header for Concor in SA Best Projects Awards

# BIMming great leaders

“Leadership and learning are indispensable to each other,”  
John F. Kennedy



An aerial before and after view of the Menlyn Shopping Centre.

CONCOR has made a great showing in the 17th annual Construction World Best Projects competition, showcasing excellence in the South African building and civil engineering sectors.

Experienced members of the construction fraternity judge the awards, which are hosted by Crown Publications, the publishers of Construction World magazine. There are six categories available for project entries, and they are judged according to a range of criteria that include construction innovation technology, design, cost, quality, risk management, health, safety, corporate social investment and environmental impact.

In the Building Contractors category, Concor Buildings won the top award for its Menlyn Shopping Centre project; and in the Civil Engineering Contractors category, Concor Infrastructure received a ‘highly commended’ award.

### Menlyn Shopping Centre

Winning the Construction World’s Best Project award in the Building Contractors category is a huge accolade for Concor Buildings, especially given the scale and complexity of this contract. In a R2,2 billion extension and refurbishment, this project has made Menlyn Park Shopping Centre in Pretoria the ‘biggest shopping experience’ in Africa.

The length of the malls – on four levels – is now over 3,4 km, and the shops cover 173 500 m<sup>2</sup> of floor space. In addition to all the refurbishment work – which included 14 000 m<sup>2</sup> of

mall ceilings and tiling – some 60 000 m<sup>2</sup> of retail space was added. All this was completed in less than 15 months. There were close to 60 subcontractors on site when the project hit its busiest phase, with about 100 bricklayers placing 3,5 million bricks.

Perhaps the most remarkable aspect of this job was that tenants and shoppers still had access to the existing mall areas so there could be business as usual. This meant that many of the teams worked at night, so that tasks were done before the mall opened each day at 08h00.

The project even received a Green Building 4 Star rating for its environmental and sustainability considerations – a ‘first’ for the retail sector in South Africa.

To fast track the construction programme, the project made use of steel elements which were fabricated in advance in a controlled factory environment. These were used to achieve a contemporary and timeless atmosphere with light-filled spaces, also including aesthetic features.

With limited space, all logistics were carefully planned so that delivered materials could be quickly erected, creating space for the next deliveries. Innovative use was made of smaller cranes and spider cranes on the decks to move steel to required areas.

### Loeriesfontein and Khobab Wine Farms

In the Civil Engineering Contractors category of the Construction World’s Best Projects competition, Concor Infrastructure was highly commended for the two pioneering renewable

energy projects in the Hantam Municipality of the Northern Cape: the Loeriesfontein Wind Farm and the Khobab Wind Farm.

In a consortium with CONCO, Concor Infrastructure was responsible for the construction of all 122 wind turbine generator foundations, as well as the adjoining hard stands and internal roads on both sites. Each of the wind turbine bases is 19 metres in diameter, and holds a 99 metre high turbine tower with an 80 ton nacelle.

Concrete design was key to the performance of this contract, demanding the right strengths while limiting the carbon footprint. The plinths at Loeriesfontein, for example, were constructed using high strength 60 MPa concrete with a design mix of 75% ground granulated cox slag (GGCS) in place of cement. Concor Infrastructure used 50% waste material for both the plinth concrete and the 30 MPa conical base concrete. This helped reduce the project’s estimated overall carbon footprint by 31%.

All this was done in an efficient and continuous work process that allowed each foundation base to be completed from excavation in just 10 days.

In line with Concor Infrastructure’s skills development strategy, these remote projects managed to source and train much of their workforce from the Loeriesfontein community 60 km away.

Situated in such an arid area, the project conserved water through re-use and re-treatment, using a screening system to remove the heaviest solids

and bacteriological rollers for the remainder. Many environmental issues were addressed, including protecting and trans locating threatened and endangered plant species, and reclaiming contaminated soil through bioremediation.

Safety was always a high priority, allowing the project to achieve two million Lost Time Incident Free (LTIF) hours in August 2017.

### About Construction World’s Best Projects awards

These are the only awards that recognise excellence across the entire built environment from contractors (civils, general builders and specialists) to suppliers to professional services (such as architects and consulting engineers).

The credibility of the awards is ensured by the experience of the three judges, each of whom has been in the industry for decades. They also represent various professional bodies of which they were presidents, namely the Engineering Council of South Africa (ECSA), Consulting Engineers South Africa (CESA), the Chartered Institute of Building (CIOB) and the Master Builders Association (MBA).



LEADERSHIP is what is needed at this stage of the African BIM (Building Information Modelling) rollout. Leaders in every discipline, in every 3D modelled project, every day. These leaders are being equipped with the tools and information needed to not only win BIM compliant tenders, but run BIM projects and transition their companies into digital construction with all its efficiencies and cost benefits through the BIM 4 Professionals course from the BIM Academy.

“This is not a software course,” explains Vaughan Harris, who you may recognise from the BIM Institute and is the driving force behind the BIM Academy. “BIM is not about buying software, and although the software plays a role in the greater scheme of things, BIM is fundamentally a process, a way to communicate and a way of working.”

The course outlines the roles of each player (and discipline) in a BIM project, from designers and

architects to contractors, engineers, quantity surveyors and the client, often a Facilities Manager who uses the information modelled to optimise the lifecycle of the facility. It drives home the best practices and explains the very real pitfalls that exist in African BIM adoption. It guides delegates to where to find the best templates, team assessment tools, case studies and equips them with the terms and overview needed to address the questions that are inevitable in a BIM project.

“There is another magic ingredient in these courses,” smiles Harris, “and that is the delegates themselves. We work hard to ensure that there is representation from all the stakeholders in a building project, players that are so often at odds with each other, who need different information at different times from each other, but are often reluctant to share this information. It is

great to see the debates that rage, the solutions that are hammered out and I watch for that moment when each sees it from the other perspective. That is the moment when BIM Leaders are born, when they see the necessity of open communication and realise that each project is a collaboration, not a battle of wills.”

The course runs over two days and bookings fill up fast. In the past month alone Harris and his team has run the course in Ethiopia, Mauritius, Johannesburg and most recently in Cape Town.

“There seats available for any delegates wanting to attend the course on 27 & 28 March 2018 in Cape Town. We are also in discussion with firms that have asked for company-wide training as a part of their BIM transition. This strong uptake shows the desperate need for this kind of support and the need for BIM leaders in South Africa.”

To find out more, visit  
<http://www.bimacademyafrica.co.za>

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The SF&DS AsepTec® linear filler reliably fills a broad range of products and bottle sizes at high line speeds. A key advantage: proven and unmatched aseptic performance with aseptic runs of over 100 processing hours at a maximum capacity of 30,000 bottles/hour.

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JBT weight fillers are widely used for filling fresh and long-life dairy products. Particularly for ESL products, filling and closing must be done with great care. To this end, JBT supplies the ultra clean Dairy- II weight filler with advanced hygienic design features.



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JBT offers filling and closing solutions for long life liquid dairy products in metal cans, glass and plastic bottles. The JBT High-Capacity Uni Ller is engineered to run cans at a line speed of up to 1500 cpm by utilizing 81 filling stations and synchronization with a X-59 seamer.

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JBT is a leading provider of integrated food processing solutions. From single machines to complete processing lines, we enhance value and capture quality, nutrition and taste in food products, while ensuring longer shelf life. JBT offers the dairy industry a comprehensive range of processing and packaging solutions to extend shelf life.



# City Council's offer to accept responsibility for Cape Town's Commuter rail



THE City Council's offer to accept responsibility for Cape Town's Commuter rail service is to be welcomed but it is a huge challenge and the City does not yet have the skills in place to manage the system.

"It has been clear for some time that Metro-rail is not winning and the service is declining, so the City had no option but to step in," said Ms Janine Myburgh, President of the Chamber.

She said the City had wisely decided that any takeover, if approved at national level, would have to take place in stages.

"The first stage should be to stop the vandalism and the copper theft and this is something the City is well equipped to do. Its Copperheads anti-metal theft unit has performed well and has a good understanding of the problem. I see no reason why the Metro Police, working with the Copperheads, cannot arrest the ongoing destruction of trainset, the signals system and other infrastructure."

Ms Myburgh said it was obvious to any observer that the trains were not well looked after or properly guarded at night and at weekends. "The proof is in the ugly graffiti that de-

faces the coaches. This vandalism can only be done in daylight or under lights so it should be easy to spot the culprits. The graffiti advertises to the copper thieves that the trainsets are easy targets."

She said this was the starting point. "It was known as the broken window theory and it had been proved over and over again. Examples were the cleanup of New York under Mayor Rudy Giuliani and it had been one of the first things the City Improvement District did when it successfully tackled the crime and grime problem in the CBD."

This would make a visible difference and it would be the first step in winning back public support for the service.

Ms Myburgh said she would also like to see some kind of partnership with the private sector. "We need to get people with knowledge, skills and resources involved in a partnership to rebuild the service and grow it into the kind of public transport system Cape Town deserves"

*The City certainly couldn't do any worse than MetroRail pathetic 'service'. Can anyone remember when our trains last ran on time?*

# Academy of Engineers calls for nuclear procurement halt until IRP consensus is reached

THE South African Academy of Engineering (SAAE) has called for a moratorium on the procurement of new electricity generation capacity, including nuclear power, until consensus has been reached on a new Integrated Resource Plan (IRP), which should be the outcome of "proper consultation in an open and transparent process".

The academy, which is a voluntary organisation comprising 197 eminent engineers across all disciplines, also called for the "hastily planned and convened Energy Indaba", scheduled for December 7 and 8, to be postponed to January 2018. This would allow for "proper planning, including the release of a draft IRP by the Department of Energy (DoE) to allow meaningful participation by all

relevant stakeholders". Similar calls have been made by several nongovernmental organisations, which believe the indaba may be an attempt by Energy Minister David Mahlobo to "rush" through an updated IRP, which includes a new nuclear build component.

One civil society grouping, FutureSA, has called for a national referendum on nuclear energy.

Mahlobo has denied that the nuclear energy deal was being in any way rushed or expedited and has also questioned the legal basis for a court application by Earthlife Africa (Johannesburg) and the Southern African Faith Communities Environment Institute (SAFCEI) requesting an order preventing government from take steps towards procuring more elec-

tricity from new nuclear power plants.

In April, Earthlife Africa and SAFCEI were successful in their application to have the processes that were being used to procure new nuclear capacity declared unconstitutional and illegal, along with three nuclear-related intergovernmental agreements.

In a statement the DoE described the latest application as "speculative", arguing that the Minister had not contravened any aspects of the judgment delivered by the Western Cape High Court on April 26, 2017, and which the previous Minister, Mmamoloko Kubayi, decided not to appeal.

Nevertheless, SAAE also expressed concern over "lapses of due-processes" at the DoE, including the processes governing the drafting



of the new of the IRP, which had not been updated for six years.

It called on the DoE to cease with ad hoc processes. Instead, the department should engage with relevant research groups and industry associations in a well-planned, facilitated and documented process to discuss and agree on the best available input parameters for the modelling of alternative scenarios for the IRP so as to ensure consensus on the assumptions.

"This could be

achieved by establishing a technical forum where the various research groups and industry associations meet to discuss these issues. A new IRP can only be adopted after proper consultation in an open and transparent process," SAAE said in a statement.

It added that "no procurement of new electricity generation capacity, including nuclear power, should be legislated, determined or procured until there is national consensus on the new IRP".

# Wind turbines fixed to the seabed

THE conventional offshore wind installations are not suited to very deep waters - yet deeper water often means better wind for generating power. Where water depths are more than 40 meters, floating offshore wind offers a solution. Technologies used for floating platforms in the oil and gas industry now enable project developers to access wind sites further from shore and with stronger wind resources.

Floating wind platforms offer other benefits as well. As they are installed further from land they are less visible - an important con-

cern for coastal communities. And then there's simplicity. For conventional fixed-bottom platforms, the development process is complex, requiring developers to drill into the seabed. Specialized jack-up installation vessels are required to transport and lift the heavy towers, turbines and blades. This all has to be done in the middle of the ocean, often in adverse weather conditions. Installing floating offshore wind, by comparison, is much easier. There is no need to drill into the seabed and the tower, turbine and blades can

be installed in a port. Developers can then transport the floating foundation from the port to the site - where the platform is tethered to the seabed using mooring lines. Specialized installation vessels are no longer necessary as the entire system can be towed by barge to the site.

Still, even with these benefits, there are plenty of hurdles to deploying floating wind at scale. Only 205 megawatts of floating offshore wind capacity will have been installed globally by 2020, compared with 34 gigawatts for the fixed-bottom market,

according to Bloomberg New Energy Finance estimates. Another challenge is cost. Throughout Europe, the cost of fixed-bottom offshore wind has plummeted in the last 18 months, falling by 50% in the U.K. to \$78/MWh in the latest auction.

The capital costs of floating offshore wind can be 2-3 times as high as fixed-bottom installations.

And then there is standardisation - or rather, there isn't standardisation. There are at least three types of floating foundation and no consensus has emerged within

the wind industry as to whether concrete, steel or both materials are most suitable for manufacturing floating foundations (which represent two thirds of the total project cost). Greater standardization would reduce costs.

Floating offshore wind has a promising future, if the industry can deploy projects at scale, bring down costs and show financiers that the technology is bankable.

*Post written by Keegan Kruger, European Wind Analyst, Bloomberg New Energy Finance (BNEF)*

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## The African Agenda: Is there scope for Exhibitions?

IT is true that the African economic and political landscapes are challenging to predict, but the rapid increasing demand for exhibitions in Africa is not. The trends are clear: when it comes to exhibitions, people are thinking beyond the borders of South Africa, with different regions in Africa developing reputations for different exhibition specialities. There is demand for more exhibitions, more exhibition venues and a more seamless experience for international travellers attending African exhibitions...

Since our inception, AAXO has been focused on formalising and standardising the industry as well as building its credibility. One of the many ways in which we achieve this is through constant and consistent research. With our mandate of driving exhibition industry growth across Africa, we have expanded our focus from South Africa to Africa-

centric. As a result, we have also built on the research Grant Thornton conducted for us on the value of exhibitions in South Africa, to the needs, trends and opportunities on the African continent. What we have found is that there is large scale international interest in African exhibitions and intra-national interest is growing rapidly too.

There is still some concern regarding the economic future of some African countries, but we are seeing a steady incline in confidence – with Kenya, for example, moving from 129th in 2015 to 108th in 2016 in the “Ease of Business” ranking.

With economies becoming less dependent on mining, gas, oil, minerals and commodity prices, there is an increase in demand for the consumer-facing and services sectors in particular. Our research shows that there is significant opportunity for additional

show coverage in these industries in Nigeria and Kenya in particular.

And while it is true that South Africa, Nigeria and Kenya are still at the early stages of exhibition development, South Africa's WTMA 2015 held in Cape Town saw tourism deals being done to the value of \$333 million.

Other statistics that corroborate this increase in interest in exhibitions include the fact that the amount of people who express interest in business to business events across the continent has increased by a substantial 20 times in the last four years alone (with growth of 40% year on year). Moreover, the most international inbound guests to Africa come from India, the USA and the UK, followed closely by Pakistan and China.

At the moment, international guests are mostly coming to Egypt, for example,

for its Medical and Pharmaceutical exhibitions, while people come to Kenya for its exhibitions in Building and Construction. By contrast, Nigeria is a popular destination for exhibitions in Power and Energy.

The recent political developments in Zimbabwe have also resulted in a significant change of international confidence and we anticipate substantial growth in the need for exhibitions in this market too. The other sub-Saharan countries and South Africa's neighbours in particular will be the growth markets of the future if we are able to help them build critical mass.

To encourage the growth of the exhibition industry in these and all African countries, AAXO has urged government leaders and convention bureaus to partner with us to develop venues and streamline the experience of international travel.

## DevConf back and in Cape Town too

DEVCONF 2018 now open for bookings, proposals and sponsorship opportunities

DevConf, the developers' conference and exhibition that drew standing-room only crowds in 2016 and 2017, is gearing up for round three in 2018, with good news for Cape Town's developer community.

By popular demand, DevConf will also be staged in Cape Town next year, taking the top speakers and trends highlights to the Mother City's developers too. DevConf 2018 will be held on Tuesday 27 March, 2018, at the Birchwood Hotel & OR Tambo Conference Centre in Johannesburg; and on Thursday 29 March, 2018, at River Club in Cape Town.

DevConf, initiated out of the Developer User Group forum in 2016, has proved a runaway success, and grown year on year in terms of attendance, tracks and speakers. Expert speakers from around the world and literally hundreds of local developers clamour to be included in the event, which has rapidly become the key learning and networking platform for South African developers.

DevConf organisers Robert MacLean and Candice Mesk said that following DevConf 2016's overwhelming success, DevConf 2017 was expanded to meet popular demand, with the second event attracting over 750 software developers from across the country. Expert talks across five tracks covered technologies, trends, case studies and everyday challenges faced by local software developers.

From algorithmic bias, blockchain, coding challenges and local hacking, to drones and beer brewing, the latest trends and technologies came under the spotlight at DevConf.

“By popular demand, we have grown the event even further, and we will take it to Cape Town next year, extending our reach and delegate numbers to well over 850,” says MacLean.

“With seven tracks at the Johannesburg DevConf and two in Cape Town, DevConf aims to cover key themes including crafting code, database, DevOps and Automation, tools, teams, people and methodologies, security, IoT, machine learning and AI, and mobile.”

### Call for Papers

DevConf has now issued a Call for Papers for the 2018 event, seeking expert speakers capable of delivering talks on code, technology, platforms, methodologies or trends that inspire, educate and entertain. Speaker submissions closed on 1 October 2017, and the final agenda were published in late October. To submit your proposal, go to <https://www.paper-call.io/devconf2018>

Bookings for DevConf 2018 are now open. To secure your place, visit [www.devconf.co.za](http://www.devconf.co.za)

Sponsorship opportunities are now available on a first come first serve basis for industry partners aiming to engage with the country's developer community at this premier event. For more information, click here. DevConf 2017 was presented in partnership with leading firms including BBD, Derivco, DVT, Microsoft, ABSA, AllanGray, Amazon Web Services, Allassian, Google, OfferZen, Britehouse, Chillisoft, IQbusiness, Micro Focus, SUSE, Entelect, EOH and Driven Software.

## Local South African Manufacturing Expo 2019

A showcase of South Africa's manufacturing capabilities

THE Local Manufacturing Expo will showcase South Africa's manufacturing capabilities across a wide variety of industry sectors. Providing an interactive, educational and practical platform, the Local Manufacturing Expo is the definitive platform for the best that South African industry has to offer.

With a specific focus on Gauteng, this show will position leading local industries to thousands of potential national and international investors, demonstrating that the power of local manufacturing is the key to unlocking vast economic empowerment, growth, development and investment.

The Local Manufacturing Expo is

Organised by Specialised Exhibitions Montgomery, in association with the South African Capital Equipment Export Council (SACEEC) and Endorsed by the Premier of Gauteng.

Location: The Expo Centre, Nasrec. Dates to be advised or contact Specialised Exhibitions (Pty) Ltd. Tel:+27 (0)11 835 1565

## 18th International Water Mist Conference (IWMC) to take place in London

RAGNAR Wighus, President of the International Water Mist Association (IWMA), has announced that IWMC 2018 will take place in London, UK, on 19th and 20th September 2018. The conference venue remains to be announced. Please save the date to ensure that you will not miss out on THE water mist event of the year. As far as the schedule is concerned please take note of the following dates:

On 15th January 2018 the call for papers will be released. Abstract deadline will be 15th May 2018. Speakers will be notified by 15th June 2018 whether their abstract has been accepted. All abstracts will be evaluated by the IWMA Scientific Council.

The conference webpage and the registration platform will be activated on 15th May 2018. IWMA will offer reduced prices up to 16th July 2018.

The programme will be published on 2nd July 2018. Day one of the conference will be Applications Day and can be booked separately. Day two will primarily focus on the scientific side of the technology.

The IWMA office will accept booking for table tops for the exhibition from 15th January onwards.

Deadline for submissions for the IWMA Young Talent Award is 30th April 2018.

## KZN Conference ■ Trade Expo CONSTRUCTION

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# Mines and Money Asia

HONG Kong Exhibition Centre 3rd April 2018

THE programme for Asia's largest mining investment conference and exhibition, Mines and Money Asia has just been released!

This year's event promises to be bigger and better with the re-launch of the Mines and Money Asia Outstanding Achievement Awards Reception in a new format and new location. In addition, our brand new investor relations partner will be matching projects with global investment in pre-set meetings on the event floor all complemented by our brand new app and meeting planner.

Furthermore the programme includes two brand new masterclasses running



on Tuesday the 3rd of April covering Mining in a Day and What every investor should know about Belt and Road.

With over 90 speakers already confirmed including leading min-

ing executives and investors such as Pan American Silver, US Global Investors, Zimplats Holdings this is one event you won't want to miss. <https://asia.minesandmoney.com/>

## Making Solar Bankable

SOLARPLAZA and the Dutch Development Bank (FMO) will organize the 2nd edition of Making Solar Bankable, in Amsterdam from 15-16 February 2018. The focus of the 2-day conference and networking platform will be on the bankability of PV projects in emerging markets across Africa, Asia and Latin America. With over 500 attendees from the project development and the investment worlds, Making Solar Bankable 2018 will provide excellent networking opportunities and allow attendees to build new business relations and close deals. <https://makingsolarbankable.com>



ers and investors. Unrivalled networking opportunities with 500+ top level participants and a unique chance to learn from industry experts in cutting edge interactive sessions and presentations on industry developments and innovations in the operational PV landscape. <https://solarassetmanagement.us/>

### The Solar Future Nigeria

May Nigeria 2nd edition. Nigeria is considered one of the biggest economies in Africa with more than 182 million people, yet about 55% of the population has no access to grid connected electricity.

As the Nigerian gov-

ernment and the private sector are increasingly turning towards Solar PV to solve this issue, Nigeria is emerging to be one of the most attractive solar markets in the region. Solarplaza is organizing The Solar Future Nigeria, a 2-day conference focusing on the opportunities and challenges in this exciting and evolving landscape, to be the key-platform for all stakeholders to connect. Get informed on the latest policies and regulations, market trends and project finance mechanisms, and engage in high-level networking during exclusive workshops, roundtables and our networking platform. <https://nigeria.thesolarfuture.com>

### Solar Asset Management

13 - 14 March San Francisco, USA 5th edition.

The essential annual conference on PV Asset Management and O&M on the North American continent, bringing together all major stakeholders in the operational PV industry, including IPP's, utilities, service provid-

## IWMA to hold 3rd UK Seminar

AGAIN, the International Water Mist Association (IWMA) will hold a seminar in the UK. The event will take place in Watford near London on 1st March 2018. The seminar venue will be BRE. Unlike in 2017 and 2016, the seminar will not be a general further education event. In fact, it was initiated with the Grenfell Tower Fire in

mind and will be entitled: "Fire Protection of high-rise Buildings with Water Mist".

"To widen the scope we will speak about different kinds of high-rise buildings and different kinds of residential buildings to – apart from everything else – show water mist in all its diversity", explains IWMA General Manager Bettina McDowell and adds.

However, like in the previous years, there will be no admission fee. From the beginning of January onwards interested parties can view the programme and register via the IWMA homepage. The seminar will be accompanied by an exhibition during which manufacturers will show their products and explain their projects.

## Dates set for WoodEX for Africa 2018

WOODEX for Africa, the largest trade exhibition in Africa dedicated exclusively to the timber trade, is gearing up for its milestone fifth instalment taking place at Gallagher Estate in Midrand from 11-13 July 2018.

WoodEX for Africa is a timber-focussed trade exhibition hosted biennially and offers a unique business and networking platform to connect, unify and grow the African timber, tooling and machinery markets. As a key event on the timber and timber-related industry's calendar, WoodEX for Africa has developed a reputation for being a solid, reliable partner in trade that has remained steadfast and resilient through trying times in both the local and global economies.

According to Stephan Jooste, WoodEX for Africa Director, "The fourth edition of WoodEX for Africa was very well supported by both local and international exhibitors and visitors alike. Feedback since the event has

been overwhelmingly positive, with a strong indication that the exhibitors were particularly satisfied with the quality of visitors, networking opportunities and the sound business leads they sourced at the event. We've since received an unprecedented number of inquiries about WoodEX for Africa's 2018 event from past visitors and exhibitors, which positions us well to host the fifth WoodEX for Africa; a milestone of which we are tremendously proud."

### What to expect at WoodEX for Africa 2018

Building on previous years, WoodEX for Africa 2018 will showcase innovative timber and woodworking products and services, such as woodworking machinery, fixtures and fittings, decking, flooring, structural timber, timber preservatives and treatment, sawmilling and logging, pulp and paper manufacturing, and wood material and veneer production.



"This makes WoodEX for Africa the ideal platform for those in – and associated with – the timber industry to connect with one another and other specialised dealers, stay in tune with the latest and greatest in the industry, to secure new business contacts and nurture existing ones, and to access special trade deals," says Jooste.

At the heart of WoodEX for Africa is the event's ever-popular Timber Talk programme, which comprises a number of short presentations by industry influencers. These compact sessions make for a dynamic and interactive learning experience for visitors and

exhibitors alike, and bring together some of the timber industry's leading system designers, contractors, manufacturers and thought leaders who address pressing industry issues and hot topics from across the timber world. WoodEX for Africa's Timber Talk sessions are free to attend and no bookings are necessary.

Bookings for WoodEX for Africa 2018 are now open. Exhibitors are encouraged to secure their space early to unlock maximum exposure leading up to the event. For more information about exhibition space, contact Annelize Jooste on +27 (0)21 851 5159 or email [info@woodexforafrica.com](mailto:info@woodexforafrica.com).

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## Xylem Cape Town saves water drop by drop

XYLEM's Cape Town office has installed an effluent point at their premises. The effluent water is pumped to the building from the Potsdam treatment works with Xylem completing the installation of the storage tanks, pump and pipework on site.

The effluent point fills a horizontal 5 000l tank and is used at its wash bay and also to top up their test bay. The effluent water is also used to irrigate the gardens.

Also installed on site are 2 x 5 000l vertical tanks to catch rain water. This is mostly used to top up the test bay, but since D day is fast approaching they have just connected a Rainsafe unit which treats the water with UV and Ozone technology. RainSafe™ is the only chemical-free water purification system available which eliminates all pathogenic organisms from the water supply, including E.coli, Salmonella, Legionella bacteria

and the Cryptosporidium oocyst. This system serves as a working demo unit for customers to view and will assist all its staff members with water collection if the taps run dry. Pending approval from the landlord to proceed with this initiative, the effluent water will be connected to the toilets. As soon as this is done Xylem will then automate the whole system.

The company report that it is not only saving water but is also reducing costs as the price for municipal water is R24,54/kl where the effluent water is R7,00/kl. Water consumption also dropped by 2kl during Oct.

Their target is to get down to 10kl/month from an consumption in November of 16 kl, so while a way to go, Xylem encourage every other company in the Western Cape to make a commitment as many small savings collectively amount to a big impact on the water crisis.

## Royal HaskoningDHV wins SAICE National Projects Awards



*Mr Sundran Naicker (SAICE President), Mr Peter Sibanda (Project Director, RHDHV), Mr Dumisani Biyela (uMgungundlovu District Municipality), Dr Terrence Hlongwane (uMgungundlovu District Municipality), Mr Bheki Mbambo (uMgungundlovu District Municipality), Mr Sbhongiseni Hobo (Hidrotech), Mrs Sanelisiwe Ngobese (Project Manager, RHDHV), Mr Rolf Kieck (Hidrotech), Miss Sindi Majola (Hidrotech), Mrs Nokuthula Dube (Nokuthula Dube & Associates) and Mr Zamokuhle Ngubane (Resident Engineer, RHDHV).*

THE ePhatheni Bulk Water Supply Scheme was awarded the Most Outstanding Civil Engineering Community-based Project for

2017 at the South African Institution of Civil Engineering (SAICE) National Project Awards held recently at a gala dinner in KwaZulu Na-

tal. In addition, Main Road 577: The Challenge of the KwaDabeka Valley, a joint venture between Royal HaskoningDHV and Henwood


& Nxumalo was highly Commended in the Technical Excellence Category for Most Outstanding Civil Engineering Achievement of 2017. Both of these projects had been winners in the Regional Awards held by SAICE earlier in the year.

### ePhatheni Bulk Water Supply Scheme

The ePhatheni Bulk Water Supply Scheme for uMgungundlovu District Municipality supported by the Department of Water and Sanitation was funded through the Municipal Infrastructure Grant funding programme. The long-term aim of this project is to satisfy the potable water requirements for the ePhatheni area up to 2031. This has improved the quality of life for the community facilitating increased economic growth opportunities.

### Provincial Main Road 577

Provincial Main Road 577 for KwaZulu-Natal Department of Transport and the BRT Lanes: Corridor C3 for eThekweni Transport Authority was developed to provide critical access for local residents to jobs and economic activity in the New Germany and Pinetown areas of Durban. Part way through the contract the first dedicated Bus Rapid Transit (BRT) lanes in Durban were added to the design and construction process. It is to their credit that the KwaZulu Natal Department of Transport and the eThekweni Transport Authority as well as the designers and contractors not only met the challenge head on, but came through the experience proud of their achievement.





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## Eight Sykes dewatering pumps to coal mining operation

INTEGRATED Pump Rental reports that one of its surface coal mining customers recently purchased eight Sykes CP 150 self-priming diesel driven pumps from the company.

Lee Vine, managing director of Integrated Pump Rental, says that most significantly the order was placed following a short term rental solution provided to the mine during the rainy season.

"Dewatering remains a critical activity in opencast mining operations and we were able to assist this customer at short notice over a weekend,"

Vine says. Within hours of having received the request for assistance Integrated Pump Rental had supplied and installed eight diesel driven pumps with 2 000 m of lay-flat hose.

Integrated Pump Rental focuses on providing fit-for-purpose dewatering solutions to industry and Vine stresses that it is not just about moving pumps into the market.

"The Sykes pumps, which were hired out to the mine, were selected because we knew these units would be able to deal with the volume of

water that needed to be transferred, and we were confident that the pumps would offer the reliability required," Vine says.

The Sykes CP 150 self-priming diesel driven pump offers a maximum head of 60 metres with a flow rate of 172 l/s. It is also capable of handling solids with a particle size of up to 77 mm.

Integrated Pump Rental reports that one of its surface coal mining customers recently purchased eight Sykes CP 150 self-priming diesel driven pumps from the company.

# An end to Cape Town's water woes?

CIVIL engineer and University of Cape Town PhD researcher, John Okedi, is studying ways in which storm water falling over Cape Town can be used to offset the current water shortage.

Cape Town uses about 300-million cubic metres of water annually, most of which comes from the six major reservoirs. However, four times as much as that falls on the city as rain each year.

Unfortunately, most of the water goes unused in times of water scarcity. Most of the storm water is managed through a network of ponds and channels that divert it into rivers and the sea. This system of managing storm water leads to higher flows of poor-quality water downstream.

The challenge is to effectively store this water. One way to do so, according to Okedi, is to exploit some of the approximately 800 retention ponds in Cape Town that are usually empty until required for flood management.

"There is already quite a substantial network of ponds in the city," he says. "It is possible to use some of the 60 ponds in the Lotus River catchment for longer-term storage while still being available, through pre-emptive discharge prior to major storms, to control flooding."

A second way is to make use of the Cape Flats Aquifer (CFA). Much of the Cape Flats is made up of beach sand, in some places in a layer up to 50-m thick. A mere three metres of this in the region of the Lotus River is theoretically sufficient to store up to 100-million cubic metres of water.

Okedi and others have been looking into the possibility of managed aquifer recharge (MAR). This is the artificial management of the levels of water in the aquifer by encouraging infiltration in selected spots, which makes water available for later extraction via boreholes. An added attraction of this approach is that MAR offers an element of water treatment. According to Okedi, the method is already being implemented in other parts of the world, such as the Netherlands and Denmark, as well as locally

on a smaller scale in Atlantis, north of Cape Town.

"We know it works," he says. "In Atlantis, storm water is infiltrated into the local aquifer through two large ponds, to be abstracted as required by a system of boreholes. This has ensured a steady supply of water for some 40 years."

"In the case of the CFA, the catchment has been subjected to considerable impacts from land use as diverse as solid-waste disposal sites, informal settlements and agricultural practices. What we don't know is the long-term impact in terms of the various pollutants as well as the feasibility of using the system at this scale. However, if we can get it right, this could potentially relieve the city of the need to supply 33-million kilolitres of potable water per year – which is more than ten percent of the current average supply using MAR in the Lotus River catchment."

Unfortunately, building the infrastructure for such a system would take several years.

Source: SHEQ MANAGEMENT Newsletter.

# Arid SA needs to get serious about desalination as a water source

By Jacques Laubscher, GIBB Technical Executive: Integrated Infrastructure



IN South Africa, it seems that whenever drought starts to bite, talk of desalination returns to the national debate. In principle, everyone supports the idea of desalinating sea water or sewage wastewater to a potable level, but the real challenge is to produce it at an economical, affordable level.

The Western Cape is only now emerging from another close scrape, where the winter rains arrived with the province's dams around 10% of capacity. Drought conditions are now such a regular occurrence that we need to look seriously not only at water conservation, but at alternative sources of potable water.

The principle of desalination is as an ancient process. Through

the ages sailors at sea have boiled seawater and captured the condensate to provide drinkable, desalinated water.

At the moment, there are primarily two types of desalination, namely thermal desalination and reverse osmosis, where saline water is forced through a membrane at very high pressure, to remove the saline content. Thermal desalination is by far the most expensive method, costing roughly four times more than reverse osmosis. But even the latter is still more than twice as costly as the current conventional treatment of surface and ground-water.

We live in an arid country – mostly desert, in fact. Our water resources are stretched to the limit, with our few water-rich areas being highly localised. This is an international problem. Only about 0.08% of the world's water is accessible for direct human use, which means that 2.5 billion people worldwide live in water-stressed areas.

South Africa's freshwater resources are virtually fully utilised and are under heavy stress. It is predicted that by 2030 freshwater demand will be 50% higher than current

levels. Water is intimately linked to our economy. A decrease of only 1% in quality and the usability of water in South Africa may cost 200 000 jobs, nearly 6% in disposable income per capita, and 5% or R1.8bn in government spending.

Our national water resource strategy says that the national water deficit by 2025 will be more than 240 000MI per year. This is the shortage that desalination seeks to fill.

Roughly 47% of desalination plants use thermal desalination, with the balance being reverse osmosis plants. Thermal desalination is mainly used in the Middle East, where fossil fuel energy sources are easily available to drive power plants.

One of South Africa's hopes for a large-scale desalination plant would be a desalination plant linked to the Koeberg nuclear power plant, where the water used in the plant's cooling process can be repurposed as a source for desalination.

At present, Koeberg returns its coolant water to the ocean, where it is roughly 10 degrees warmer than the ocean.

The economics of desalination involve a supply cost, usually made up of capital

costs, operation and maintenance costs, environmental costs and transportation costs.

Besides the Koeberg option, reverse osmosis desalination has been the process of choice in South Africa.

To contextualise, Cape Town recently brought its water consumption down to 685 MI/day.

Already Cape Town is looking to the private sector. Koeberg, if it gets on stream, could eventually provide anything from 150 to 450MI/day – up to two thirds of Cape Town's daily water needs.

Ethekwini is looking at building a 100MI/day plant, combining seawater with wastewater, which is a sensible thing to do. Other coastal communities are also looking at reverse osmosis desalination plants.

Seawater desalination can increase and sustain a country's coastal freshwater supply and thereby sustain economic growth. The capacity for seawater reverse-osmosis desalination is growing at roughly 14% per year, though it still accounts for only 1% of the world's freshwater supply.

Unfortunately, technology has not yet caught up with demand, despite significant investments in research

and development around reverse-osmosis technology.

I trust that science will be able to develop a viable solution, though. Then it will be up to the policy experts to come up with a cross-subsidization model that makes water affordable to all.

The leader at this stage in desalination is Israel, now desalinating around 582 000 MI of water a year. But technology everywhere is catching up. Government recently announced a partnership with Iran, to develop desalination plants near coastal communities to boost water supply.

A South African based global desalination company in Cape Town recently submitted a white paper to the city at the height of its drought, proposing the rolling out mobile 20 MI reverse-osmosis desalination plants within four months, and in parallel developing a larger desalination plant that could deliver 450 MI per day in a public-private partnership.

Desalination technology has improved, and the associated energy costs have decreased to the point where it must be taken seriously. The question is no longer "Is desalination feasible?" but "Is it feasible NOT to use desalination?"

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# Cape Town will reach Day Zero if stubborn residents continue to use water excessively

CAPE Town's mayor Patricia de Lille reports:

I recently accompanied the City of Cape Town's Water and Sanitation Department as part of ongoing efforts to restrict households who, despite warnings and appeals to reduce water usage, are still using excessive amounts of water.

While the City is doing everything in its power to bring additional water online, all Capetonians must reduce their water usage to below 87 litres per person per day. We thank the water-saving heroes for all their efforts to help us beat this drought, but not everyone is doing their part. We cannot allow some people to continue abusing water while we are in the midst of an unprecedented drought.

This is the only way Cape Town can avoid Day Zero when all residents play their part and save water while the City builds new water projects. We can only save

water while there is still water to save.

Despite receiving warning letters, there are still households using excessive amounts of water. This kind of behaviour is pushing Cape Town closer to Day Zero.

Today we installed water management devices at three properties: two in Pinelands and another in Thornton. The water usage of these households over the past six months ranged between 19 000 and 48 000 litres per month. This means that, on average, the daily consumption of these households often exceeded 1 000 litres per day.

Many high users maintain a stubborn attitude in this time of water scarcity and have prevented City staff and contractors from accessing their properties to install these meters.

At times, they have even become aggressive and law enforcement staff had to accompany officials to install the

water meters. The City's teams have visited these properties twice already. This is a waste of City resources and residents have no standing to prevent the City from accessing its infrastructure. The residents at these three properties also have no outstanding queries on their water accounts and have not requested a quota increase from the City.

The City has taken actions to install water management devices at 18 597 high consumption households across the city so far where contraventions have occurred.

Since July, the City sent warning letters to approximately 50 000 households using excessive amounts of water. In August, the City started the roll-out of water management devices to restrict excessive users to 350 litres per day.

Properties where consumption above 350 litres per day is justified can, however, make rep-

resentation to the City to request a quota extension by submitting an affidavit with the names and identity numbers of people residing on a property. In such cases where there are more than four people, the City will set the water management device to the appropriate level so that each person has 87 litres of water per day.

This past week, we again saw residents behaving badly because there was some rain and consumption went up to 631 million litres per day. We should be saving more water to meet the target of 500 million litres per day to move Day Zero further away. Day Zero comes when we reach 13,5% dam level capacity and the City will close almost all taps and residents will have to queue for water from around 200 collection sites.

*Time to name and shame the wasters? Ed.*



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## New Qdos 20 pump launched by Watson-Marlow Fluid Technology Group

A new pump has been developed to offer highly accurate sodium hypochlorite metering in disinfection applications with flow rates to 20 litres per hour at a maximum of 7 bar pressure. It is especially suitable for applications at the well sites of many smaller water treatment plants, where operators are often injecting into water lines at higher pressure.

Qdos 20 features the same user-friendly interface and control options, ensuring that users have continuity with any existing Qdos applications. Offering low total cost of ownership, the new model is designed as a drop-in replacement for diaphragm pumps. Qdos pumps also include the ReNu pumphead for single, no-tools maintenance.

Its intuitive interface provides simple control of the pump via manual, 4-20mA, contact or PROFIBUS control. The brushless DC motor control maintains flow accuracy of +/-1% with a repeatability of +/-0.5% and a turn-down ratio of 3330:1.

The pump is ideally suited for tight control for chlorine residual. Successful field trials and SCADA data indicate a considerable improvement in variation of chlorine residual



compared to even the highest specification diaphragm metering pumps. This is achieved via the twin offset rotor design.

The Qdos 20 peristaltic pump technology uses two tube channels; where the channels are operated out of phase. Although peristaltic pumps are generally lower in pulsation than other positive displacement pumps, Qdos 20 reduces this pulsation even further by alternate tube compressions ensuring pulsation is balanced out. This results in almost continual positive fluid displacement, and consistent metering of chemical into the application.

Process uptime is maximised by facilitat-

ing quick, safe and easy pumphead removal and replacement, with no need for tools, no specialist training and no maintenance technicians needed on site. The contained pumphead design with integral leak detection reduces wastage and eliminates operator exposure to chemicals.

Field trials have confirmed the long life of the pumphead, with one utilities customer in Minneapolis experiencing 12 months pumphead life. When operating up to 7 bar, the Qdos 20 pump also significantly reduced maintenance downtime. As a result, the plant is currently in the process of replacing the trial model with a production unit.

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# Adelaide Desalination Plant – tips for Cape Town?

DESALINATION technology has been around for many years and is not the panacea but part of the solution including ground water extraction, rainwater harvesting and water re-use, where traditional surface water supplies have been outstripped by population and industrial growth and climate change. This example from Australia concerns a very large plant capable of supplying 300 megalitres/day and powered in part by renewables. By contrast, our largest plant is located at Mossel Bay and provides 15 megalitres/day and cost R210 million at the time of commissioning in 2011. New technologies such as home grown eutectic freeze crystallisation (EFC) promise even greater efficiencies and with the cost of wind and solar power declining, the perceived high energy cost of desalination may be a thing of the past. Ed.

In April 2008, Aurecon was engaged to undertake technical studies and investiga-

tions for the Adelaide Desalination Project. The initial scope of work included conducting environmental and engineering investigation, developing concept designs for the 100 Gl per annum seawater desalination plant and transfer pipeline, and involvement in the environmental impact statement (EIS) process.

The marine and terrestrial environmental and engineering investigation programme that supported the EIS and concept design process was a major challenge. It involved not only Aurecon's own environmental, geotechnical and engineering specialists, but the management of nearly 50 sub-consultants, procurement of a jack-up barge, and the input of South Australian Water Corporation (SA Water) specialists and external reviewers.

For the pre-construction phase of the Adelaide Desalination Project, Aurecon worked closely, and collaboratively, within a wider integrated proj-



ect team set up by SA Water. In addition to direct deliverables, assistance was provided to the wider team in terms of the development of the feasibility study, including the business case, plant site selection, pipeline route selection, procurement strategies, and risk management plan.

Aurecon also assisted with the development of tender documents and participated in the bid evaluation

process to appoint the consortia and other contractors.

In addition, Aurecon provided the performance-based technical specifications for the plant's design and construction contract, and associated 20 year operations and maintenance contract, to best meet SA Water's long term needs across the technical and commercial objectives.

Aurecon provided an onsite technical team throughout the deliv-

ery of the project and delivered construction phase contract management, project management and technical advisory services for the project.

The plant was constructed under a design build operate and maintain (DBOM) contract arrangement, with separate contracts for the 13 km transfer pipeline and pump station, power supply infrastructure and early enabling works. Working with the integrated

wider project team, the EIS process and approvals, and signing of major works contracts, were all successfully achieved within the tight project timeframe.

The design of the reverse osmosis (RO) system at the heart of the plant allows a high level of plant flexibility and can achieve capacity turn-down ratios to as low as 10 per cent of total capacity with proportional decrease in energy consumption.

Desalinated drinking water was introduced into Adelaide's water supply network in October 2011 and the plant reached its full production capacity of 300 megalitres a day in November 2012.

SA Water delivered commercial handover of the plant 19 days ahead of schedule, within the original approved budget of AUD1.824 billion (R19 billion today).

The project has received several industry awards including the Project of the Year at the Project Management Institute awards in 2013.

## Minister sticks to her guns with Cubans

REPLYING to a question from the National Council of Provinces, Minister of Water and Sanitation, Nomvula Mokonyane, defended her department's decision to continue employing Cuban technicians and engineers to exchange skills within the department's Water Programme. The South African Institution of Civil Engineering (SAICE) is perturbed that South African civil engineering practitioners are once again being ignored in favour of engineers from abroad.

The Minister reported that the Programme had led to black engineers being given opportunity to gain work experience from the Cuban engineers. She said local companies and service providers are often hesitant to support black engineers, and to provide them with accreditation. She continued by saying that, "thanks to the Cuban programme, black engineers who could previously not obtain accreditation.

## SABS

### The quality of water infrastructure, a critical factor in the life-cycle of water

The integrity of water quality has become the highest priority in many developed countries around the world; it drives substantial investments in capital. Developing countries like South Africa cannot afford the same level of investment, however, quality control should never be overlooked. Water has never been a critical resource in the world like it is today, South Africa included.

The South African Bureau of Standards (SABS) lives with the realisation that it has a direct interest in mobilising solutions to revive a stagnant economy and needs investment in infrastructure to galvanise a South African economy. At the core is the delivery of its mandate of using standards to promote the growth and competitiveness of industry through standards, using standards to improve the quality of commodities, products and services as well as the value-adding assessment tools. SABS, therefore, plays a role in product testing in accordance with the SANS specifications for that product; water testing becomes a critical part of the water life-cycle.

Problems in design, maintenance and quality control of water infrastructure could be a cascading factor and have serious cost implications. Components such as pipes, coupling valves and pumps are critical items in the delivery of the much needed resource. Water quality and integrity describe the ability of a distribution system to deliver water of acceptable quality to its users. In South Africa, the focus is on extending the provision of services to unserved communities rather than on the control and consistency of water quality, the supply as well as the integrity of water.

Most municipalities have challenges with regards to aging and deteriorating infrastructure, lack of resources and capacity, including properly trained personnel and institutional knowledge as well as lack of management systems. The operation and maintenance of a water distribution system can be greatly affected by the system design and construction practices used. For instance, a design that specifies unsuitable pipe materials or pipes that are damaged during construction may lead to major future operation and maintenance problems.

Compliance and quality control should be the key strategic drivers. State Owned Companies (SOC) play an important role in ensuring that this is carried out. It is imperative to ensure consistency of quality in finished products that will comply with the South African Water Services Act which

## SANS 241

Guiding the quality of water in South Africa.

prescribes compulsory national standards for the quality of potable water. The act requires every water supplier to have a water safety plan and a water quality monitoring programme to ensure that water quality standards are complied with. Minimum water quality standards are specified in SANS 241 which is the South African National Standard for drinking quality water.

The SABS can sample and test pre and post treatment of water as well as product testing of the components in a treatment plant or distribution network in accordance with the SANS specifications for that product. Ideally, there should be no change in water quality from the time it leaves the treatment plant until it is delivered to the consumer, but in reality, substantial changes may occur as a result of complex physical, chemical, and biological reactions. Certification and testing bodies can do repetitive testing to ensure water quality integrity. SABS provides such services nationally for both water and wastewater so that it complies with the Blue and Green drop standards in South Africa.

The fact that the public depends on water distribution systems to comply with every component against the standard specified for drinking water places an important responsibility on the government, through municipalities. The public trusts water from the tap, and by extension the water distribution system. The importance of the health and safety of the public is critical and appropriate measures should always be taken. Micro-organisms, such as viruses, bacteria and protozoa in water can cause diseases, taste and odour problems as well as corrosion of concrete and metals. Tests performed by the SABS focus on microbiological indicators that may not be harmful themselves, but indicate that the water is contaminated and thus may also contain other harmful micro-organisms.

Loss of physical integrity and even small drips, loss of water from the system through leaks or overflows can result in water not reaching consumers. The recent rupture of a bulk main and distribution line within the Sandton area caused huge losses in revenue not only for the City of Johannesburg but also for businesses. Component failure can be attributed to design faults, for instance when an insufficient pipe wall thickness is specified or even when it does not adhere to SANS specification there can be water hammer pressures

experienced in a pipe. Thus it is of utmost importance that municipalities do everything in their power to ensure water quality integrity.

Flaws are normally caused by defective materials that were not identified in the manufacturing process. Defective materials can have many issues such as microscopic cracks in steel or impurities trapped in plastic pipes. The preventative action would be to send these materials for a Mark Scheme approval type testing programme with the SABS. Missing or defective parts can be avoided by implementing a quality management system like the ISO 9001 system certification, which can prevent improper design or construction. Examples include missing or defective covers on reservoirs or insect barriers on air vents.

The environmental health and safety management certification programmes like the ISO 18001 can prevent improper construction or repair. During construction or repairs the system is open to the surrounding environment and thus the physical integrity is compromised due to materials collapsing and falling onto the pipes etc. Careful cleaning mark of the site as well as safety barriers and construction signage for the exposed section of the construction site is required to be compliant to the ISO18001 OHS and ensure that it is safe before repaired on or before site use.

The Department of Water and Sanitation in collaboration with the SABS and Municipalities should work together to ensure water quality and integrity. Access to more laboratories with newer technologies will alleviate these problems. Training to the Department of Water and Sanitation at all levels of government levels will provide foresight to better handle challenges. Budgets for quality control and water integrity should be given the highest priority. The development of newer standards for water and wastewater treatments should be more extensive and should have more participants in the technical committees. We have one planet and we all have the responsibility to protect its natural resources; so let us plan, manage and control.

For more info contact:  
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# Desalination – simple thought, complex delivery

“WATER, water everywhere and not a drop to drink” goes The Rime of the Ancient Mariner, penned in 1797 by the English poet Samuel Taylor Coleridge, and today on the tip of Africa these words have poignancy as we face down the worst drought in Cape Town for over 100 years.

Unlike then, today we have the technology to turn the vast amounts of seawater into precious drinking water, yet having the technology is but part of a complex process explains Chris Braybrooke, GM Marketing of Veolia Water Technologies South Africa, part of a global player in the water industry – a firm with 160 years of experience in the field.

“Almost every day we receive enquires for seawater desalination plants from concerned private individuals, industry and local and provincial authorities to provide a solution

for the current water crisis. A generally held perception is that we have the technology to convert plentiful seawater into much needed potable water, so ‘let’s get on with it!’

As a vendor of high technology desalination plant and equipment, that it should be so simple. The design and supply of the plants and equipment are perhaps the least of our concerns – Veolia has been doing this all over the world for more than 2 decades and as such we are recognised as experts in the field.

What is not fully understood are logistical processes that result in a facility that delivers potable water. Typical of these include:

Where best to site the plant? What is the environmental and social impact? How does one comply with stringent licencing requirements? What is the delivery mechanism? Do we have enough power? How much is it



15Ml/day plant at Mossel Bay.

going to cost – not just the hardware – but the operation and maintenance? Are there cheaper alternatives? And what happens to this investment when abundant (and cheaper) surface water is again available?

In order to receive a water usage licence for a desalination plant, one has to carry out an EIA study – Environmental Impact Assessment – which can take the best part of a year for thorough investigation and recommenda-

tions. Environmental consultants and specialists in the marine environment will determine the siting options and impacts of constructing intake and return structures on the seashore, conducting studies to determine the impacts on the marine environment of discharging concentrated brine back into sea.

Saline levels in seawater are not the same – seawater differs in composition between our eastern and west-

ern seaboard and studies are required to ensure that no inadvertent harm is caused to the fish and marine plant life by haphazard discharge.

Taking samples, studies and preparing reports takes time and that is one commodity that we don’t have right now as our surface water supplies are finite and dwindling fast.

Then there is the supporting infrastructure – how do we get the desalinated water from the plant to where

it’s needed? Consulting engineers from various disciplines have to be engaged to determine and design the most feasible and cost effective way the deliver the precious resource, and when this is done – which may require a further EIA to confirm a pipeline route or a supply power line – contractors and suppliers need to be appointed to provide the skills and equipment to make the scheme work.

All these aspects require a project management company to co-ordinate the multiple trades and specialists to deliver the project, on time, within budget and to specification.”

## Small plants are quicker but big plants are more cost effective

“A knee-jerk reaction to an impending disaster is seldom the best solution and economics and overall feasibility usually dictates that building one large plant is better the several small ones. However we don’t have the luxury of several years of leisurely construction time so must live with the consequences and costs of several smaller desalination plants which can be brought on line more rapidly. Certain installations, such as that proposed at the V&A Waterfront, may favour shared intake and brine return infrastructure between several operators, and that raises the question of ownership and PPP’s (Public, Private Partnerships) to design, construct and operate the facility. Whilst PPP’s have been established in the delivery of certain infrastructure, water hasn’t been a focus, so far.”

## Desalination not the solution – other avenues

“While desalination seems an obvious answer being so close to the sea, it will be a combination of other resources that provide long-term water security for the Cape Town urban area.

The exploitation of ground water – bore-

holes – is fast and effective by tapping into the underground aquifers, and a less obvious one (to some and more problematic) is waste water re-use. This is also a relatively quick fix where effluent is treated to potable or near potable standards and re-introduced into the raw water or treated water reticulation system for human consumption or as a grey water circuit for industry and irrigation use.

There are a number of re-use initiatives in South Africa but the concept of using treated effluent hasn’t been properly communicated to the general population or local politicians and therefore is a perceived no-no in many areas. That the practice is common place in most of the world’s cities has escaped our influencers except in more innovative and outgoing municipalities. An example of this is in neighbouring Namibia, where in Windhoek direct waste water reuse has been in place for several decades and excess water is stored underground to supplement the aquifer.

All these plants and attendant technologies require skilled personnel to operate and maintain them and much of the hesitation that currently affects the water and wastewater industry in particular, is due to a lack of skilled operatives which leads to ‘if it ain’t broke, don’t fix it’ mentality. Veolia offer industry certified training programmes to up-skill plant operators and/or provide operation and maintenance contracts to remove this potential headache from plant owners.

We are being told that drought and extreme climatic conditions are the new norm and with predicted increases in population, those responsible for the management of water and wastewater need to embark on some serious long-term planning and implementation if we are to secure our future. For without water there is no life,” concludes Braybrooke.



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# SA Water Institute on Western Cape water crisis

by the Board of the Water Institute of Southern Africa (WISA)

THE water sector is filled with scientists and engineers that are trained to design, operate, and maintain a very complex system that needs to collect, treat, and distribute water to sustain life and business for South African citizens.

Some of the challenges that these professionals face do indeed stem from unethical practices in both the public and private sector, but the current drought crisis adds an environmental component that places the existing water structures under extreme pressure.

Water professionals have already been consulted in all pos-

sible alternative supply methods – including greywater reuse, stormwater harvesting, groundwater management, water efficiency at the city and in businesses, managed aquifer recharge, desalination, and wastewater reclamation as options.

The city has also now adopted water sensitive design principles and we hope they lead the way for the rest of South Africa around integrated water supply and management.

The water sector is caught between a rock and a very dry place, and the worst response would be one that brings immediate relief that is not balanced by

longer term responsibility.

The conversation in traditional and social media should not be around the format of the eventual solution, but of the various roles that need to be played in its implementation.

WISA is not a regulatory body, and neither is it a platform for environmental activism. It does not act as watchdog but rather provides facilitation opportunities for water professionals to share and grow their knowledge.

We have however been implored by our members to raise our representative voice on their behalf.

We urge all water

professionals to have the courage to blow the whistle on activities they are aware of that is hindering the timely implementation of a responsible solution. There are several independent whistleblowing lines in South Africa that are equipped to deal with sensitive information and protect the identity of those that decide to not stand for corruption any longer.

We also implore journalists to use their best investigative skills to find balanced facts and not get caught in publishing information that promotes sensationalist activism. Sensational stories make it very difficult for those that are

already working on solutions to keep their focus and spend their energy on what they need to do; deliver safe water to private and corporate citizens.

We commend the City of Cape Town for its efforts in facilitating exploring solutions and communicating with its citizens, and the significant reduction of water use since the implementation of its crisis management strategy.

We however also call on the City for acts of boldness in their decision to move plans into action; now is not the time for analysis paralysis. While procurement policies have their place in business as usual,

and we strongly support adherence to those policies in normal circumstances, the circumstances that threaten lives and livelihoods of Capetonians are anything but normal.

We request from National Government their strongest support for what the City of Cape Town needs to make the bold decisions they have to, and to be ready to act as soon as it's needed.

We ask of each private individual in South Africa to treat water as a precious commodity, not as an enabler of a comfort, not as an entitlement. We urge you to take responsibility for your own water usage,

and not relegate the responsibility of dealing with this crisis to those that will be impacted first and hardest.

We warn anyone that considers creating their own solutions to stay within the boundaries of the law and the City's regulations as those have ultimately been created to protect shared resources for all. Contravening these regulations will be seen as an ultimate act of selfishness once the crisis has been averted. In the end, if we do not all take a hard look into what we've condoned so far in terms of our water use and systems, we will soon run out of time to look.

## Structa water storage solutions to support municipalities and farmers especially during the drought

AS a member of the Structa Group of Companies, Structa Technology proudly services the municipalities and agriculture industries in the provision of much needed water storage solutions to local communities and the farmers especially during the drought currently experienced.

Over the years, the 40-year proprietary product, Prestank, has proven to be a hygienically safe, cost-effective, and reliable water-storage solution for municipalities, farmers, communities, commercial sectors, private sectors, mines and even for personalised storage.

Especially now, during the drought experienced in the Western Cape, the two Structa water-storage products, namely the Roddy Tank, for lower water volumes, and The Prestank, for water volumes above 10,000 litres, can be of valuable aid to municipalities and farmers. These two products are known for being durable and cost effective.

Prestank can be used for various water storage applications, including temporary or permanent installations at municipal water infrastructure, farms, building sites, hospitals, water utili-

ties, rural communities and mines.

The Roddy Tank is ideally suited for smaller villages, schools and clinics in rural areas, and therefore suitable for small holder farmers as well. The Roddy Tank is a sectional, round, galvanised water storage tank that offers 3 900 litres, 7,200 litres and 10 000 litres capacities.

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# World is facing a water crisis

THE world faces an acute water crisis within ten years, affecting food supplies, megacities and industry globally, a leading science writer has warned.

“World water use is already more than ten trillion tonnes a year. While the human population has tripled since 1950, our water use has grown sixfold,” says Julian Cribb, author of ‘Surviving the 21st Century’ (Springer International 2017). The book focusses on the ten greatest threats to the human future – one of which is resource scarcity – and what we can do about them.

“Rising demand from megacities, mining, agriculture and the fossil fuels sector in particular is combining with climate change to threaten major water scarcities across the world’s subtropical, arid and semi-arid regions. When this affects the food supply there will be vast migrations of people – like the world has never seen before.”

Mr Cribb says that scientific studies show:

- groundwater is running out in practically every country in the

world where it is used to grow food, posing risks to food security in northern India, northern China, Central Asia, the central and western US, and the Middle East. Most of this groundwater will take thousands of years to replenish.

- the icepack on high mountain chains is shrinking, emptying the rivers it once fed in practically every continent.
- around the world, large lakes are drying up, especially in Central Asia, China, sub-Saharan Africa and the South American Andes.
- 50 000 dams break up the world’s major rivers, sparking increased disputes over water between neighbouring countries
- most of the world’s large rivers are badly polluted with chemicals, nutrients and sediment.

“The water crisis is sneaking up on humanity unawares. People turn on the tap and assume clean, safe water will always flow. But the reality is that supplies are already critical for 4.2 billion people - over



half the world’s population. During times of drought, megacities like Sao Paulo, La Paz, Los Angeles, Santiago, 32 Indian cities and 400 Chinese cities are now at risk.”

Among world leaders, Pope Francis recently warned that we could be moving toward “a major world war for water”. He deliberately altered his prepared speech to issue this caveat when addressing an international seminar on the human right to water, hosted by the Vatican’s Pontifical Academy of Sciences on Feb. 23 and 24, 2017.

Each of the last three UN secretaries-general – Ban Ki-Moon, Kofi

Annan and Boutros Boutros-Ghali – has warned of the dangers of world water scarcity and of ‘water wars’ in the future. The world’s leading scientific journal, Nature, issued a sobering warning of water scarcity under climate change in December 2013.

“Other than in water circles, these warnings seem to have passed largely unheeded by governments and the population at large,” Cribb says. “The sense of urgency necessary to prevent a world water crisis is not there.”

“Especially overlooked is the impact of water scarcity on the world food supply. As cities and energy

corporations combine to rob farmers of the water needed to grow crops, the global irrigation sector is stagnating at a time when it needs to double food output to meet rising global demand for food. This will directly impact the availability and price of food to city people everywhere.

“We commonly assume that the natural hydrological cycle of evaporation and rainfall means there will always be ample water. In reality, we pollute and misuse water so badly, it is often not safe for drinking, domestic use or food production. Meanwhile rainfall, effluent and wastewater in cities everywhere is

wasted or discharged to the ocean.

“The average citizen of Planet Earth uses 1 386 tons of water per year, and the demand continues to rise every year, stressing supplies in many cases to their limits,” Cribb says.

A study by NASA (2015) shows that a third of the world’s major groundwater basins are stressed, and people are using the water without knowing when it will run out.

A timeline maintained by Professor Peter Gleick of the World Water Institute reveals the increasing frequency and tempo of disputes and conflicts over water globally.

“The evidence points to serious trouble for the world over water within the next ten years. The world focus of attention has been on climate – rightly so, as it is an integral factor in water scarcity – but the massive water crises that will disrupt food supplies and dislodge huge populations are much more imminent than other major climate impacts. Present policy does not reflect this.”

Mr Cribb says it is time to put world water science, technology and management on a war footing, if the crises are to be averted.

“Currently humans spend US\$1.8 trillion a year on new weapons. If we spent a tenth of that on clean water technologies, fixing leaky supplies, recycling city water, measuring availability, agricultural water efficiency, effective water markets and controlling demand we could avoid the conflicts which the Pope and UN heads foresee.

“Current evidence suggests most countries prefer war to water.”

“Surviving the 21st Century” (Springer International Publishing 2017) is a powerful new book exploring the main risks facing humanity: ecological collapse, resource depletion, weapons of mass destruction, climate change, global poisoning, food crises, population and urban overexpansion, pandemic disease, dangerous new technologies and self-delusion – and what can and should be done to limit them.

## Kendal Power Station to produce potable water

ESKOM Research, Testing and Development (RT&D) has conducted a pilot project at Kendal Power Station in Mpumalanga, which looks at produc-

ing high quality drinking water.

According to the utility, the water resource will be supplied to the nearby town of Wilge and also save costs.

The pilot trial explored the feasibility of replacing chlorine gas, which is used at the water plant to produce potable water, with chlorine dioxide.

### Kendal Power Station pilot

The South African parastatal explained that the chlorine gas chambers that are cur-

rently used have been classified as a major hazardous installation and the use of chlorine has proven to be problematic due to the lack of operational control,

the lack of product efficiency and the added risk of health problems.

The chlorine dioxide eliminates strange odour and discoloration in water, making

it taste better. It also eliminates the formation of Trihalomethanes (THM), which can cause cancer with prolonged ingestion.

Barry MacColl, General Manager Research, Testing and Development said: “For the trial, that lasted three months, Eskom RT&D used chlorine dioxide for disinfection and proved that it was a more efficient disinfection chemical.

“Since the trial, Kendal has been producing high quality potable water that meets South African Bureau of Standards (SABS) and environmental protection agency (EPA) standards and can now supply the town of Wilge 15km away, with safe drinking water.”

The success of the trial has prompted a further trial which will test the assumption that chlorine dioxide as a pre-treatment chemical would result in more efficient organic removal and improve the overall efficiency of the water plant.

“The pilot can be beneficiary if implemented permanently as it can produce high quality drinking water that is safe for human consumption and at the same time, reduce the cost of potable water production,” MacColl said.

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# ‘Mine-blowing’ automated door solutions

THE local mining industry is facing significant challenges which are putting this sector under severe pressure to find ways to reduce operational costs and improve productivity in order to ensure a sustainable future. Consequently plants, systems, processes and equipment are scrutinised to identify all possible areas where efficiencies can be increased and unnecessary costs eliminated.

“So when it comes to door systems for the mining industry, there can simply be no compromise on safety, efficiency and ruggedness,” says Bram Janssen, Managing Director of Maxiflex. “The doors must be energy efficient and tough enough to withstand dirty corrosive environments, high wind conditions and extreme temperatures. Most importantly, they have to pass the mines’ strict safety standards. Our three industry-leading brands tick all the mining criteria boxes,” confirms Janssen.

The ASSA ABLOY range of vertical lifting fabric doors (better known as Megadoors) and the high-performance Albany RR1000 rubber doors are ideal for a wide range of facilities such as wash bays, truck shops, loading docks, maintenance facilities, parking garages, transportation centres, distribution facilities, wastewater management and utilities typically found on mines. These premium brands are manufactured by global automated door specialist, ASSA ABLOY Entrance Systems, with over half a century of engineering experience and expertise.

Both brands combine numerous advantages to ensure lowest possible total cost of ownership for the end-user. Designed to deliver strong, reliable efficient operation over their life span, these doors meet the extreme conditions typically found within the mining environment. In addition, the user-friendly doors are easy to maintain and contribute to a more comfortable working environment.

“It is safety first on any mine and therefore we have adopted a no-compromise approach when it comes to the safe operation of our doors,” continues Janssen. He explains: “The Megadoors are designed with patented safety arrestors that prevent a ‘free-fall’ condition in the un-

likely event of failed lifting mechanisms.”

The robust Megadoor vertical lifting fabric doors are manufactured from highly durable materials that easily cope with temperatures ranging from -35°C to +70°C. They are thus ideal entrance/exit solutions for extreme mining environments where doors are

exposed to moisture, dust and very high or low temperatures, or where the door opening is large. A bespoke feature of these doors is their extreme design flexibility. Every door is individually designed to meet specific application requirements such as high wind load for example. Their unique

design and structure offers durability, tightness, energy efficiency, operational reliability and minimum maintenance. With no hinges, springs, cables or couplings that can be damaged, these doors are damage resistant.

The Albany RR1000’s chemical- and corrosion-resistant panels and frames en-

sure superb durability and performance. The thick, two-layer SBR rubber panel (lifetime warranty on the rubber curtain) protects against temperature extremes from -40°C to over 82°C. This strong panel, combined with heavy duty side frames and a patented Windlock guide system, provides resiliency against dam-

age, harsh conditions and high wind loads of up to 200km per hour. Boasting the fewest moving parts for a door of its size, the door can literally be repaired within minutes without the special tools.

Sophisticated controls and sensors protect the Megadoor and continuously monitor the opening. Through-

beam photo eyes in the high-performance Albany RR1000 doors detect objects in the doorway and safely open the door before contact. These safe operating conditions protect workers and maintain the lifelong operational quality of the doors for complete end-user peace of mind.



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# Kemach introduce new range of JCB Midi Excavators

AT a recent open day, more than 60 Kemach Equipment's customers were introduced to the new range of JCB Midi Excavators at their Brackengate, Brackenfell premises. Two new models have been introduced to the South African market; the 5t 55z-1 and the 8t 86c-1, available with either steel or rubber tracks, being interchangeable by the customer on site in about an hour.

"Steel tracks are most suitable for general site work but where paved or asphalt surfaces are encountered, the rubber tracks are specified to prevent surface damage" explained De Wet Pretorius Kemach Brach Manager.

"Tracked excavators have been a part of the JCB manufacturing family for over 50 years and their experience and insight has come together in what are the most advanced mini diggers available, combining strength, high performance and class leading features.

"These machines

are highly productive, compact, agile, innovative and economical to own. Additionally they are very safe to operate and easy to service too" enthused Pretorius.

#### Features common to both machines include:

- Zero tail-swing makes the 55Z-1 incredibly manoeuvrable even in the most confined spaces because there's no rear overhang outside the footprint of the tracks.
- Premium componentry and great structural strength for long service life
- New larger cab area, ergonomic controls and premium comfort with standard air conditioning
- Perfect dig end geometry for ultimate lifting performance
- Patented and innovative hydraulic



New 8t capacity JCB 86c-1.

system for maximum efficiency

#### New generation efficiency

Because damage sometimes happens on sites, flat glass windows is specified throughout the range as is 100% steel bodywork, minimising possible replacement costs.

Class-leading greasing intervals of 500 hours, means minimal downtime and a new Live Link monitoring system provides alerts

on the excavator's diagnostic status with servicing and safety alerts.

Engine revs reduce when the operator's armrest is raised, improving fuel economy and noise levels. There's a One-Touch Idle feature that conserves fuel. Programmable auto idle, meanwhile, can be activated when the controls have been inactive for a period.

Economical Perkins (55z-1) and Kohler engines (85z-1) are fit-

ted and engine speed can be controlled for different hydraulic flows by simply cycling through four different power bands: Light, Eco, Heavy and Heavy Plus. This feature tailors performance to any application.

The patented low-pressure return line circuit further improves fuel efficiency because the pump doesn't need to overcome a very high pressure before work can start.

Load-sensing hydraulics is standard-fit which translates into the hydraulics only consuming power on demand, this conserves fuel. Attachment hydraulics for hammers and augers are pre-installed making for quick and easy change over.

Cabs on both new machines are fully ROPS and TOPS compliant and where more protection to both cab and operator is desired, impact protection glass can be specified.

JCB claims its 2GO system is unique as it ensures that excavator hydraulics can only be operated in a safe lockable position via two separate inputs.

An overload screen displays a bar chart from green to red, indicating whether the overload point is close or exceeded. Once the limit is passed, the buzzer sounds and the bar flashes to warn the operator.

A large track frame

width and low centre of gravity provides enhanced stability and thanks in part to a 70/30 front screen split, greater visibility than outgoing machines ensure easier, safer trench digging and manoeuvring.

Tracking performance is smooth and precise, ensuring high dozer capabilities and fast travel times. To increase productivity, auto kick-down motors automatically adapt to changes in terrain, increasing productivity and reducing operator fatigue.

Bucket rotation is 181°, offering great spoil retention during truck loading. A dipper length from 1.45-1.82m is available to suit particular applications.

#### Serviceability

JCB boast the best SAE service rating on the market, partly because routine checks can be done easily at ground level, without special tools and the 86c-1 incorporates a gas-strutted 30° tilting cab for easy access.

Structural strength Fully robot welded boom and four-plate dipper design are made of high tensile strength steel, with internal baffle plates providing added structural strength for long-life durability.

These latest 8-ton class machines boast a heavy-duty kingpost which features durable re-bushable pivots to optimise service life. It also provides a safe route for all excavator hoses.

Tried and tested premium manufacturers like Perkins and Kohler engines are specified as well as Nachi and Bosch-Rexroth hydraulic components and Bridgestone tracks.

#### Comfort

Cabs on both machines are spacious and large doors provide easy, safe access. Inside, there is 6%

more space than before, plenty of storage, a phone tray, stowage nets and cup holder. A 12V phone charger, powerful heater with window de-mister and a high performing air conditioning system with 9 vents completes the picture.

Low cost of ownership The load-sensing hydraulics on JCB's midi excavators only consume power on demand, conserving fuel and the patented near zero pressure return line circuit further improves fuel efficiency as the pump does not need to overcome as high a pressure before any work can be done.

Contributing to further fuel economy and reduced noise levels is a feature where engine rpm automatically drops below idle when the operator's armrest is lifted.

Auto idle can be programmed to activate between 2 and 30 seconds after the controls have been inactive to increase fuel efficiency.

#### Productivity

The new dozer profile and angle provides high performance with low soil retention for easy cleaning combined with tapered lift points which are positioned behind the edge of the blade providing excellent protection. A dozer blade float option is offered which enables easier ground leveling and efficient site clean-up. The angled dozer blade speeds up trench back filling.

"The JCB 55z-1 and 86c-1 are completely new designs and commonality of many of the components has led to more price competitiveness than in the past."

"The plethora of advanced features and attention to detail, aid productivity, driver safety and comfort and fuel efficiencies resulting in low real cost of ownership, making JCB a compelling choice in this segment" concluded Pretorius.

Kemach JCB offers the best in earthmoving equipment, ranging from the backhoe loaders to skid steers, wheel loaders, excavators, telescopic handlers, rough terrain forklifts, and compact equipment. In addition to the equipment itself, Kemach JCB distributes the full range of JCB parts, while skilled field service technicians and expert product support engineers ensure that assistance is available at all times on a 24/7 basis.

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# Eazi Access partnership elevates Table Bay Mall

SITUATED along the R27 (West Coast Road) in Cape Town, the new Table Bay Mall boasts an impressive 65 000m<sup>2</sup> of retail space. Constructing the mall meant using numerous reliable machines with a team that could adhere to tight deadlines; something Eazi Access could achieve thanks to its expansive fleet, expert operators and solid industry partnerships.

“Eazi Access proudly partners with some of the best suppliers of material-handling and work-at-height solutions worldwide. We also have a long-standing partnership with Group 5 – which won the tender to build the mall – so we could start discussing the various access options available quite early on,” Tony Chandler, Cape Regional Manager for Eazi Access, explains. “We took them through our conventional MEWP (mobile elevated working platforms) and telehandler options, and the possibility of using Maeda crawler cranes for this project – something that had never been done before.”

In addition to 7m and 9m electric scissor lifts, Chandler says the Maeda crawler cranes proved to be popular on site. “The main contractor was concerned about the weight of the machines, as some of them were required to work on the second floor which had just been cast. The Maeda crawler cranes are agile and strong enough to complete any task. They also passed the load-bearing restrictions set by the main contractor.” The Maeda crawler cranes were used for various applications, including casting concrete columns and lifting structural beams.

As with any construction project, adhering to deadlines and budgets is non-negotiable. “Even though we had to work above a massive parking area below the concrete deck, our Eazi Access operators and field service technicians worked around the clock to ensure deadlines were met,” Chandler says.

The scale of the project required numerous solutions, so Eazi Access shipped in additional products to complete the tasks. The full-service solution offered by Eazi Access included over 90 machines, operators, and on site support such as diesel fills and maintenance. “Safety is always our number one priority, and Eazi Access trainers were deployed

with each new delivery, for all contractors, to ensure that every single operator was trained in line with the necessary safety regulations,” he points out.

Chandler says that Eazi Access are up for any challenge custom-

ers can throw their way. “Our tailor-made solutions are not limited to conventional methods. We are always looking for innovative ways to do things.”

“This project allowed us to demonstrate many new Maeda crawler

crane applications, which significantly improved productivity and cost savings while enhancing the safety of the workforce. It is great to see the growth of this new product line alongside the recently introduced Magni range of

telehandlers, both of which are solutions we are proud to have introduced to the industry,” he concludes.

*The Maeda crawler crane assisting with the build at Table Bay Mall.*



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## Lovingly Lifting

VALENTINE'S Day is once more just around the corner and Retail steps up to promote the demand, drawing from Distribution Centres far and wide.

People all over the world send and receive cards, flowers, champagne, chocolate and vouchers for Spa days and weekends away. So, with all that TLC going around, you would think that one of the more vital cogs in the process gets a little more loving too - namely the humble forklift.

But no, there's no time to get tender on Tin-

der for forklifts. They just work all the way through, uncomplaining, coming in for the usual abuse, getting the blame constantly for damaged and collapsed racking amongst other things.

It's not easy matching the right forklift with the right owner, the dance of the swans pales in comparison to the hardcore rituals in Materials Handling. With all the time and investment going into your forklift it is good to know that nobody loves and protects your forklift more than FMX.

FMX does not need a

special day to simply do what it does every other day - dropping costs whilst simultaneously lifting productivity.

More importantly FMX does not skimp on safety to enhance productivity. You, the customer determines the appropriate balance for your operation and through world class features such as Ignition Left On, Excess Idle Cut Out, Transmission Protection, Engine Protection, Low Battery Cut Out etc. your forklift also gets a little loving helping it last many more happy years.

## Keeping clean with Haaga

BLT (Pty) Ltd's portfolio of German engineered walk-behind Haaga sweepers range from entry level machines for domestic and commercial applications, to high power sweepers for use in large commercial and industrial areas.

"Haaga sweepers, known globally for efficient cleaning, easy operation and extended service life, have a patented sweeping system, which consists of two counter rotating disc brushes that cut under the waste and push it directly into the waste container. These disc brushes protrude on each side of the machine for greater sweeping performance," explains Ken Mouritzen, BLT. "Course or fine

waste -including sand, paper and beverage cans - is picked up easily and is not driven over or pushed in front of the sweeper. These machines also collect wet foliage, which is normally a difficult operation.

"Haaga walk-behind sweepers, with comfortable, height-adjustable handles, are easy to push because of the beltless drive design. A variable brush height adjustment mechanism ensures optimal cleaning performance on various types of surfaces and additional guide rollers enable easy sweeping along curbs and walls. The dirt container is effortlessly removed, emptied and returned.

"Robust sweepers,

with advanced Turbo disc brush technology, are recommended for professional applications. These machines have a fine dirt brush at the back of the unit for sweeping twice in one step, collecting even the finest debris.

"The intelligent airflow design of these high power sweepers ensures efficient dust control. The air containing dust is cleaned within the machine and returned to the sweeping cycle, which means that operators do not need to stand behind the machine in a cloud of dust, as is the case with other sweeping systems."

Walk behind sweepers in the new Haaga 355 series, with a turbo sweeping system, are suitable for areas up to 500m<sup>2</sup> and are recommended for applications including homes, gardens, walkways, lobbies and exhibition stands.

These machines have standard features for efficient sweeping, as well as a slated container for easy crossing of steps, a smart closure system to facilitate easy opening and closing of the waste bin and a vertical space saving storage design, which also prevents the collected waste from falling out. The lightweight Haaga 400 series, with a double sweeping turbo system, is particularly suitable for use on surfaces of more than 2 000m<sup>2</sup>. All disc brushes are driven with durable, smooth-running gears, without susceptible straps and an air duct system with a dust filter for efficient dust control.

Sweepers in the Haaga 600 series are suitable for areas up to 3 000m<sup>2</sup> - especially in property management, professional cleaning, petrol stations, workshops, car parks, agricultural businesses, factories, warehouses or production facilities. These manoeuvrable machines require no pushing, merely guiding. Battery powered units, which are hand steered, have a running time of up to 120 minutes.

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**“Cape Gate believes that the structural design of a trolley is paramount to the retail environment.”**

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## Patented SuperShield ballistic protection helps repel pirate attack

A 35m Sentinel patrol vessel designed and built by Cape Town shipyard Nautic Africa (a Paramount Group company), withstood a pirate attack off the coast of Nigeria at the end of September 2017 thanks to its high levels of ballistic protection that secured the safety of the crew and ensured the uninterrupted operation of the vessel.

The vessel and crew succeeded in thwarting an ambush attempt by pirates who attacked the vessel from the front armed with AK 47's. Proving that the 35m Sentinel patrol vessel is properly armoured for its task, the crew managed to escape the attack unscathed.

"The demand for fast, rugged and highly ballistic protected vessels is particularly strong among African countries on the east and west coasts that are affected by incidents of piracy, drug trafficking, oil theft and/or illegal, unreported and unregulated fishing as well as other illicit offshore activities," says



Part of the ballistic protection on the starboard wheelhouse.

James Fisher, Executive Chairman of Nautic Africa, explaining that their design teams work closely with clients to ensure that the vessels meet their specific needs.

"Ballistic protection has become a must in many African markets in order to guarantee the safety of the crew and passengers," says Fisher, who adds that Nautic pioneered the use of ballistic protection in the oilfield support market. "We have invested substantially in providing market-leading capabilities in this area."

"We are particularly

grateful that one of our vessels met and delivered the required protection for crew who are susceptible to the dangers of these areas," he said. "Nautic Africa is very confident in the knowledge these security vessels, which are manufactured using the lifesaving 'Super Shield' composite structure, will provide significant ballistic support from AK 47 gunfire. Nautic Africa's STANAG Level 1 Ballistic Protection is standard on all platform security vessels."

The vessels are primarily used for security

and transfer of crew and cargo off the coast of Nigeria, and can also be used for various other roles such as dive support, environmental protection and, because of their versatility and adaptability, are able to conduct diverse operations and deal with a number of threats within a country's exclusive economic zone.

At the time of design, the Nautic Africa team undertook extensive research and development to ensure that they delivered the best possible product. The vessel is constructed with 5083 aluminium plates while the bridge is fitted with Nautic's patented SuperShield Ballistic Structure. This provides protection against small arms such as AK-47 rifles favoured by sea borne criminals.

Nautic's in-house design capability allows for greater levels of customisation on new builds to suit specific clients and the shipyard is committed to developing a support network on the continent.

## Damen Shipyards opens its doors

ON Thursday, 23 November 2017, Damen Shipyards Cape Town (DSCT) welcomed over 50 invitees from across the Southern African dredging sector to its yard in the Port of Cape Town for a one-day seminar on dredging. The guest list included representatives from a wide range of companies with an interest in dredging; encompassing those that supply dredging services, those that employ dredging services, and various government agencies.

The Damen Shipyards Group is a leader in the design and build of both dredging vessels and the equipment they use to extract and relocate sediment. Damen dredgers can be found in operation all over the world, and the group has particular expertise in the design of modular dredgers that can be delivered in a series of containers and transported by road to remote inland locations, where they can then be assembled and put to work.

The programme ran from 9am to 4pm and included a presentation, lunch and a demonstration of a DOP dredge pump. There were also Q&A sessions at various intervals to ensure that any queries were swiftly answered.

The opening address was delivered by Sefale Montsi, a Non-Executive Director and board member of DSCT, and Benny Bhali, Sales and Marketing Executive at DSCT. Andrew Mukandila from the Department of Trade and Industry, Ms Bon-

nie Horbach, Consul General, Kingdom of the Netherlands, and Riyaadh Kara from the Department of Public Works, then each spoke to the assembled delegates.

Also present at the event was a delegation from the Lesotho Highlands Development Authority (LHDA). The agency is responsible for the implementation of the Lesotho Highlands Water Project, which involves the construction of a number of dams and reservoirs, and its representatives welcomed the opportunity to meet with participants in the dredging industry and discuss its future requirements.

These were then followed by a series of presentations covering techniques, technology and current issues involving maintenance dredging and capital dredging, dredging equipment and dredging services.

After lunch, the guests had the opportunity to see a Damen DOP 150 Submersible Dredge Pump in action from a mounting on the quay wall. This was made possible by the cooperation of James Tucker and his team from T&T Marine, Southern Africa's leading dredging and marine contractor.

"It was a great success," commented Sefale Montsi, "and we were delighted by the large number of guests who accepted our invitations. The South African Government through the Department of Trade and Industry has been very

supportive of the event, sharing our goal of developing a sustainable dredging industry in the region by raising awareness of the value that it can deliver to our maritime sector and promoting dialogue among all the relevant stakeholders. Our event gave invitees the opportunity to listen to expert guest speakers discussing the future of the dredging industry in the region.

"We also received much positive feedback from our guests, who appreciated this chance to expand their knowledge of the current status of dredging in Southern Africa, and of the challenges and opportunities that are available to them. It also allowed us at DSCT to demonstrate how we can assist and support this growing industry."

Andrew Mukandila, Deputy Director of Industrial Policy at the Department of Trade & Industry, added: "The seminar on the dredging industry in Southern Africa was an eye opener on the potential that the industry has in terms of growth, job creation and skills development mainly for young people. We are of the view that, if given an opportunity on the local market, the industry will greatly develop, attract investments in equipment manufacturing, and build market confidence and competitiveness in the Sub-Saharan Africa region." Due to the positive response to the seminar from the industry, DSCT is now considering making the seminar an annual event.

## First woman pilot for Saldanha Bay

SALDANHA Bay has its first qualified female pilot with an Open Licence certification. Salmaa Vincent piloted her first vessel into the port in July.

Open Licence certification permits marine pilots to guide ships of any type and size in and out of port.

Aged 30, Vincent received a bursary from Transnet National Ports Authority (TNPA) in 2005, which allowed her to pursue one year of Maritime Studies at Cape Peninsula University of Technology, followed by 18 months at sea with Safmarine (now Maersk).

In 2008, she passed her oral exam with the South African Maritime Safety Authority (SAMSA), and was issued with a Deck Of-



ficer certificate of competency.

Transnet then enrolled her in a tug master programme, which she completed in January 2009. This was followed by oral exams at SAMSA in order to qualify for her Master Port Operations certificate. She went on to do a year of marine pilot training, which included a two weeks practical ship handling in Rotterdam. Upon her return, she completed simulation training in Durban at the Transnet Maritime

School of Excellence.

Vincent completed her practical pilot training in Cape Town in September 2011, and qualified as a marine pilot.

She served at the Port of Cape Town for three months before returning to the Port of Saldanha.

Vincent, who completed her Harbour Master Diploma in October 2016, through IBC Academy in London, said she would like to pursue her MBA in the near future.

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## East London port gets R542m investment injection

TRANSNET has pumped a collective R542 million into several major infrastructure and equipment projects at South Africa's only river port in the last few years, with the latest project – rehabilitation of the sheet pile wharf adjacent to the dry dock – completed earlier this month.

The R108-million project set out to rehabilitate the 83-metre wharf adjacent to the Princess Elizabeth Dry Dock and Latimer's Landing. With multiple functions, including use as a ship repair facility and for berthing small craft, the wharf will support the port's Operation Phakisa ambitions focusing on marine transport and manufacturing.

**“The port is gearing up to further enhance its capacity.”**

Acting port manager Alvin Singama said this was one of several projects aimed at refurbishing and modernising the port's infrastructure to sustain existing business and cargo, while simultaneously positioning for future growth.

“The port is gearing up to further enhance its capacity with expansion of its automotive facilities and the upgrade of maritime engineering offerings in line with Operation Phakisa,” said Singama.

Operation Phakisa is a programme introduced by the South African government to unlock the economic potential of the country's oceans. In East London it includes refurbishment of the dry dock at a total cost of R219 million to support ship repair and marine manufacturing. The total dry dock refurbishment project is expected to be completed in 2021, with new switchgear and crane rails already completed. The initiative to establish a boat building cluster at the port has however been negatively impacted by the worldwide economic slowdown.

“Nevertheless, there is still potential to grow volumes and expand business in the port, which will have a positive socio-economic impact on the city,” added Singama.

Other investments

already completed at the port earlier this year include the R176-million West Bank Foreshore protection project. This entailed the construction of a revetment to protect the port's foreshore and rail infrastructure from erosion and damage caused by rough seas and wave action.

The port's tanker berth fire protection system is also being upgraded, while port security has seen an investment of R92m to date, with further investments on surveillance equipment under way.

The port is also replacing its rail network and refurbishing the Buffalo Bridge.

Deepening and widening of the port's entrance channel is still in pre-feasibility stage, with Transnet National Ports Authority (TNPA) exploring various designs and layouts based on modelling and completed simulations of vessel manoeuvring.

Studies for the Latimer's Landing jetty project have been completed and are awaiting finalisation of approval by the Eastern Cape Heritage Resource Agency.

Source: FTW on-line

## Shipping losses down, but new threats surface

LOSSES of large vessels dropped by 16% during 2016, to 85 from 101 in 2015, according to the newly released annual Allianz Global Safety and Shipping Review 2017.

The preliminary figures for the accident year show a significant 29% improvement on the 10-year loss average of 119 a year, according to the report.

More than a quarter of losses in 2016 (23) occurred in the South China, Indochina, Indonesia and Philippines maritime region, “which has been the top loss hotspot for a decade,” according to the report.

While losses in this region remain stable year-on-year, the total is still almost double

that of the next highest loss region – East Mediterranean and Black Sea (12).

Losses are up year-on-year in the following maritime regions: Japan, Korea and North China; East African Coast; South Atlantic and East Coast South America; and the Canadian Arctic and Alaska.

Cargo vessels (30) account for more than a third of 2016's losses.

Foundered (sunk/submerged) is the most common cause of all vessel losses, accounting for over half, often driven by bad weather. The number of losses resulting from fire/explosion (8) is up slightly year-on-year.

Machinery damage/engine failure is the

main cause of control being lost over the vessel. “While the decline in the number of total losses and casualties is encouraging, there is no room for complacency, especially at a time of inherent economic challenges,” says the report.

“Environmental scrutiny is increasing with record fines being issued for pollution. “New ballast water management rules aimed at stopping the spread of harmful aquatic organisms are welcomed, but will also add a significant cost and potentially bring new risks to shippers.

“Political risk is rising with Yemen and the South China Sea posing increasing threats.



“Economic pressure in the shipping industry could accelerate the trend towards larger, more efficient ships.

Such ‘mega ships’ may promise greater efficiencies, but they also bring new risk challenges, such as salvage operations and the availability of suitable ports of refuge in the event of an incident.

“Exposures are increasing exponentially. The loss of a large container vessel or passenger ship in envi-

ronmentally-sensitive waters could cost billions of dollars, potentially even resulting in a \$4bn loss, if two large vessels are involved.

“Concerns over the structural integrity of some larger vessels – particularly conversions – also remains an issue in the wake of a number of incidents and losses resulting from breaches in recent years.

“Industry stakeholders need to come together to address this issue,” says the report.

## Transnet launches another tug in R1.4bn project

TRANSNET National Ports Authority (TNPA) recently launched its penultimate tug as part of its R1.4 billion, nine-tug construction contract.

The tugs, which are being built by Southern African Shipyards in Durban, will be deployed to ports around the country. The newly launched UMKHOMAZI, which is named after the river on the KwaZulu Natal South Coast, will serve at the Port of Durban.

The launch event also saw the handover to

TNPA of the seventh tug, USIBA, which was named and launched in August. TNPA GM: Commercial and Marketing and Lady Sponsor of UMKHOMAZI, Lauriette Sesoko, revealed that USIBA would now be delivered to the Port of Cape Town.

“One of the benefits of being a multi-port authority running a complementary port system, is that we are able to pool our resources between our ports and to adjust plans where

necessary. Originally, tugs in this order were planned for the Ports of Durban, Richards Bay, Saldanha and Port Elizabeth, where the needs at the time were assessed as being the greatest.

“However, we have since taken the decision to redeploy the seventh tug, USIBA, from Richards Bay to Cape Town instead,” she said.

**An upsurge in larger vessels in CT**

Sesoko said the Port of

Cape Town had recently experienced an upsurge in larger vessels requiring tugs with a more powerful bollard pull. Meanwhile, the Port of Richards Bay had already received three new tugs in recent years.

“TNPA has assessed and mitigated this risk to ensure that Richards Bay's port operations are not compromised. In future orders where Cape Town is catered for, a tug will be reimbursed to the Port of Richards Bay,” she said.

Sesoko gave the assurance that TNPA would continue to roll out its fleet replacement programme to best serve all its ports and their customers.

The nine tugs are being built for TNPA over three and a half years, with five under construction at any given time, as part of a wider fleet replacement programme that also includes new dredging vessels and new marine aviation helicopters.

Source: FTW on-line



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## Bitcoin's bite: why central banks should clamp down on cryptocurrencies

FEW issues in central banking are more likely to provoke anxiety than the fear of losing control of one's currency. Recent events have provided another perfect illustration of this point with the Chinese central bank banning initial coin offerings of bitcoin-based currencies.

According to Huw van Steenis, Global Head of Strategy at global asset manager, Schroders, there is growing uneasiness behind the scenes about how disruptive technology may be to the banking and payments system. "Over the summer both the Basel Committee on Banking Supervision and the World Economic Forum put out lengthy papers on their concerns and the state of play."

He says that so far, the big winner of new technology has been clients. "Fintech innovators in banking appear to have been less disruptive than expected because they have largely failed to change the basis for competition in such a regulated industry, the WEF report argues. Rather, technology has led to a marked improvement in customer service and a sharp fall in the cost of payments."

He says that there are three broad concerns beyond resilience to cyber-attacks.

"First, will the banks, which they have spent so much time trying to make safe, become weakened by new entrants? Simply put, will



banks be "Amazoned"? Bankers used to think regulation would make financial services less appealing for new entrants. But now the penny is dropping that non-bank rivals can just attack more profitable areas and skim the cream and leave the regulated banks less profitable.

"Second, will banks become less important as more lending shifts beyond the regulatory perimeter? Since 2009, swathes of business have moved from banks to asset managers. Over \$600bn has been raised to fund private debt, according to market data firm Prequin. As a result, policymakers are spending more time analysing the non-bank sector. The growing dependence of banks on large technology firms to run their infrastructure is also giving policymakers pause for thought about who is systemically important."

Thirdly, he asks whether central banks will lose control of pay-

ments if privately-issued bitcoin currencies were to take off. "Issuing currencies is a lucrative business as central banks pocket the difference between the cost of issuing a coin or bank note and its face value.

"Central banks also fear their ability to monitor the payment system would fall. Given the global fight against terrorism and organised crime, this is an acute concern. In an extreme scenario, central banks fear they may even lose control of the money supply."

Van Steenis says that until recently, policymakers had not worried too much about cryptocurrencies as they provided few benefits as a currency, apart from to those simply trying to hide their tracks. "They are not a 'store of value'. They are not widely enough accepted to be a useful medium of exchange. And digital currencies have failed to be as secure as promoted; they have been successfully hacked

several times this year in huge size.

However, as cryptocurrencies grow, we should expect more central bankers to look to outlaw or crimp their use. This will be most acute in markets which are worried about capital flight and organised crime. This won't stop speculators and enthusiasts, but will limit their potential to create the powerful network effects which would make them a useful parallel currency."

But perhaps these concerns should prompt central banks to make their own currencies more appealing, says van Steenis. "Clearly, more efficient protocols for electronic payments would help and there is much to learn from bitcoin technology. But more profoundly, this is another reason why the European Central Bank, Bank of Japan and others should look to exit their dangerous experiment of negative interest rates sooner than later," he concludes.

## Offshore investing: where to next?

IT is getting easier and easier for anyone to protect your money from rand fluctuations and invest offshore. In fact, international saving is now so simple that you can put funds away in one of several currencies just by clicking a few buttons.

Absa clients can now open a currency account online, allowing them to save in 17 different currencies – such as the dollar, euro, pound, or even pula.

"Before we made it possible to save in foreign currency with just a few clicks, you had to go into a branch to open this type of account – and that meant waiting for between two and 14 days for the account to be opened," says Daniel Buntman, Absa's Retail and Business Banking head of international banking.

This, he notes, meant that the rand – known to be a volatile currency – might have shifted in between a client's decision to save in foreign currency and when the account was opened.

Buntman adds online access also democratises, as he puts it, saving in different currencies.

"Most people just don't have access to buy forex to save in, they usually have to go through brokers and an open complex, costly accounts."

Now, however, clients can invest in foreign exchange with ease and there's no minimum amount, as long as the small money transfer fee is covered. Buntman explains the fee is a flat amount to cover exchange control costs, whether a client invests a few thousand, or a few hundred thousand.

this on hand – as long as the information is up to date.

"In the future, we'll be making it possible for clients to make online payments directly from currency savings accounts," says Buntman. The functionality to pay out of your currency account is already available in almost 100 branches



"In fact, you can invest as much as R1 million a year without the need to provide the South African Reserve Bank with documentation." The sophisticated platform has been more than 18 months in the making, and is set to grow in functionality. Because it is linked to a current profile, clients don't have to queue to provide documentation such as a South African identity document, proof of address and a tax number, because the bank already has

across the country. In the meantime, it's easier for people to hedge against the rand's volatility by saving in different currencies, he says. Buntman adds it is also easier for people to save for international holidays. "You can save for your international trip over time, putting away some money each month, which eases concerns about currency fluctuations."

This, he explains, will help reduce the stress of planning for a holiday. "We can't eliminate the cost of traveling, but we will make it easier to go overseas and spend in the currency of your destination." Over time, Absa will also build in the ability to transfer funds to its travel card online, The Multicurrency Cash Passport card smartly matches the currency a shopper is spending to the appropriate pre-loaded currency purse, explains Buntman.

It also means clients won't incur international fees when shopping overseas. However, you can't overdraw your international savings account, and the income you earn is taxable in South Africa.

"Currency accounts democratise savings because it gives you the personal freedom to quickly, easily and conveniently put some of your hard-earned savings in foreign currency – it's all connected to your online banking and is quick and simple to use," adds Buntman.

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# Practical business advice within 24 hours

SIMPLYBIZ®, the free networking platform for small business owners, has teamed up with mentorship company Be Your Legacy, to provide practical business advice to entrepreneurs and small business owners who are facing challenges in their business.

Powered by Nedbank, SimplyBiz® was started in 2010 to connect SA's small business community and provide a platform for conversations, information exchange and networking opportuni-

ties in a B2B context.

"The aim is for business owners to obtain authentic, first-hand guidance from fellow business owners who have been in similar situations before. The platform also continues to attract professionals and subject matter experts in fields such as law, HR, IT

and marketing who are willing to contribute and give back some of their time to ensure the success of our small business sector", says Alan Shannon, Nedbank Head: Relationship Banking Sales.

The platform recently underwent a full revamp and conversations are now struc-

tured around 4 broad topics of "Getting more clients", "People and finance issues", "Business administration" and "Staying motivated".

The partnership with Be Your Legacy is seen as an exciting development and unlocks access via SimplyBiz to of over 170 serial en-

trepreneurs with real business experience in a wide range of industries, who are passionate and committed to providing support.

"We understand that start-ups and growing businesses need timely feedback and practical advice in their business, and we encourage small business own-

ers to make use of this opportunity," explains Shannon.

Be Your Legacy CEO and founder, Alex Simpson, says the movement is proud to be able to offer advice, support and encouragement to business owners through the SimplyBiz® platform. "Mentorship and guid-

ance is our ethos, and we are committed to empower entrepreneurs to reach their goals. We encourage business owners to join us on SimplyBiz® - for real business conversations," he adds.

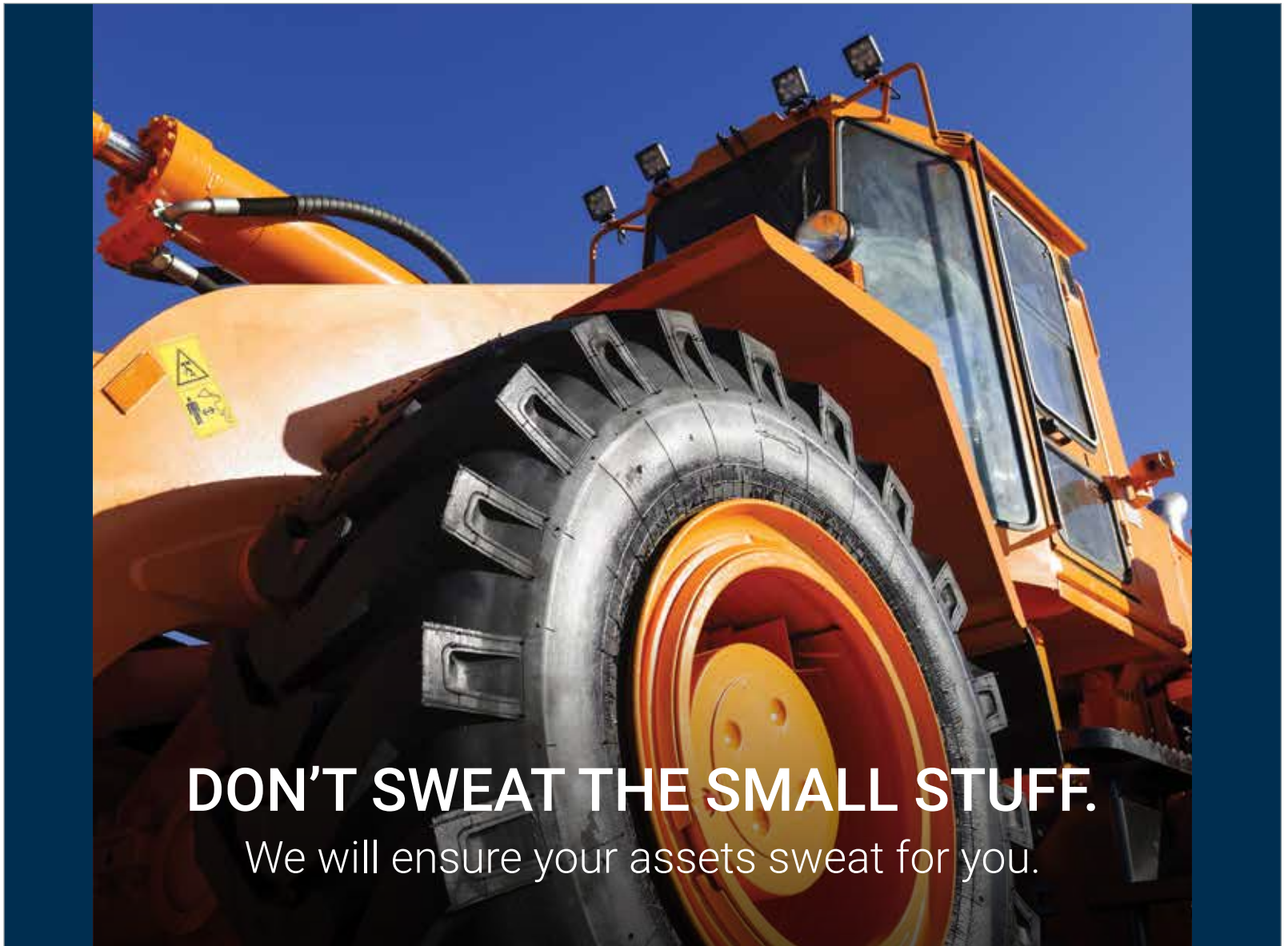
SimplyBiz® can be accessed via the website: [www: simplybiz.co.za](http://www.simplybiz.co.za)

## BDO South Africa to merge with Grant Thornton Cape Town and Port Elizabeth offices

BDO South Africa has announced its intention to merge with the Cape Town and Port Elizabeth offices of Grant Thornton. The merger, which will be effective 1 March 2018, will consolidate the BDO and Grant Thornton Cape Town offices under the BDO brand whilst BDO will again be represented in Port Elizabeth.

BDO South Africa CEO, Mark Stewart, says "The demand for in-depth expertise is increasing, with technical and industry advice in high demand. Critical to this merger is our ability to scale up and to leverage the opportunities created by the changes in the auditing profession, including the introduction of mandatory audit firm rotation. BDO will now be in a far stronger position to take advantage of opportunities in the market and to provide the market with a significant alternative to the competition.

The merged firm will offer 413 professional staff, including 35 partners and directors, across both Cape Town and Port Elizabeth, bringing BDO's total staff complement to just over 1 000 employees. Services offered include the full spectrum of professional services including Audit, Company Secretarial, Business Services and Advisory, Corporate Finance, Cyber Lab, Economic Incentives, HR Advisory, Internal Audit and Forensics, Legal Services, Risk Advisory, Tax, Tech Advisory, and Wealth Advisory.



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## WEG W22Xd flameproof motors fully ex certified

THE WEG W22Xd flameproof motor, available from Zest WEG Group, meets worldwide standards for use in hazardous applications including the mining, chemical and oil and gas sectors. The W22Xd motor is certified in line with European ATEX and International IECEx standards.

ATEX/IECEX certified, WEG W22Xd flameproof motors are designed to cope with the rigours and aggressiveness of explosive atmospheres, while delivering the added benefits of high efficiency. Motors available with the IE2 or IE3 energy efficiency rating offer minimised noise, vibration, and low operating temperature for increased reliability and safety.

The WEG W22Xd flameproof electric motor is classified for Group I (mines susceptible to firedamp) and Group II (surface industries), for gases Group IIB and IIC, suitable for use in hazardous area defined as Zone 1 and Zone 2 - Gases and Vapours, and Zone 21 and zone 22 - Combustible or Ignitable Fibres.

**“Stainless steel tube array... optimises cooling of rotor, stator...”**

The advantage of one motor carrying dual certification for gas and dust facilitates a reduction in inventory costs for users as a common motor frame can be used with different types and sizes of terminal boxes.

Developed in 2002, the initial range of WEG flameproof motors covered the larger power output segment for low, medium and high voltage supplies up to 11kV. Following the introduction of motors in frame sizes 315 to 500, the range was extended in 2014 to include larger sizes



*The WEG W22Xd flameproof motor, available from Zest WEG Group, meets worldwide standards for use in hazardous applications including the mining, chemical and oil and gas sectors.*

through to a 710 frame.

Complying with the latest editions of IEC/EN 60079 standards, the WEG W22Xd range allows Zest WEG Group to provide a comprehensive range of hazardous area motor products from IEC frame sizes 71 to 710.

Features of the WEG W22Xd 560 to 710 frame design include a stainless steel tube array which provides air ducts allowing both axial and radial flow paths which optimise cooling of the rotor, stator and critical components such as the bearings. The motor is fitted with an aerodynamic fan and cover for efficient air flow with minimum noise.

Designed using finite element analysis (FEA) software, the cooling system on the WEG W22Xd flameproof motor provides outstanding heat dissipation. This reduces thermal stress on the insulating materials facilitating longer life. It also eliminates hot spots by providing a uniform temperature distribution throughout the frame.

The redesigned main terminal box of the WEG W22Xd flameproof motor incorporates fixing bolt housings that provide protection from impact and other environmental damage. This also prevents accumulation of water whilst providing generous space for easy connections.

There are multiple

options available for the main power terminal box and accessory terminal boxes for connecting motor protections such as current transformers, surge arrestors or surge capacitors.

The WEG W22Xd flameproof motor is available with two, four, six or eight poles – with higher polarities available on request – in low and high voltage versions and with a range of outputs from 500kW to 4 500kW. The frame has a robust welded steel construction and features solid integral feet to minimise vibration, complementing the low noise outputs.

With the WEG W22Xd range, Zest WEG Group has the capability to provide flameproof motor solutions for application in virtually all extreme conditions including those with ambient temperatures from minus 55°C to plus 60°C and altitudes up to 5 000 metres above sea level.

Zest WEG Group's product line-up includes low and high voltage electric motors, vibrator motors, variable speeds drives, soft-starters, power and distribution transformers, MCCs, containerised substations, mini-substations, diesel generator sets, switchgear and co-generation and energy solutions as well as electrical and instrumentation engineering and project management services.

## Clamping down on cable theft

CABLE theft is a particular hazard particularly on mine sites due to the potential health and safety implications, especially for workers underground. Banding & ID Solutions Africa sales representative Matthew Campbell highlights. The costs incurred by cable theft also has a negative impact in reducing proactive maintenance budgets.

Ideal for securing cable, the UL4000-C Ultra-Lok® application tool has been designed specifically to replace band-and-buckle systems in



high-volume applications. Combined with the Ultra-Lok® band-and-buckle system, the UL4000-C delivers a finished product that is stronger than the traditional methods used to secure cable.

This makes clamping three to five times

faster than conventional banding tools when tensioning a band clamp, making the UL4000-C one of the most powerful portable band clamp installation tools on the market. The security of any traditional cable installation, such as on

a mine site, can be increased significantly by applying a cost-effective Ultra-Lok® clamp as frequently as every 150 mm of cable.

“The cost of replacing stolen cables, in addition to the resultant downtime, are both very high, as cable theft affects production and total costs in the end. Ultra-Lok® is a robust clamping solution, with a tamper-proof design, and is easy to install. It has the potential to reduce cable theft in the mining industry dramatically,” Campbell concludes.

## Young scientist tackles illegal electricity connections

THE issue of illegal connections is a serious challenge for power utility Eskom and municipalities costing the utility and the country millions in lost revenue and increased repair and maintenance costs.

Illegal connections are so rife that they are the leading cause of electricity-related injuries and deaths in South Africa and innocent children are the most common victims as they come into contact with live wires while playing.

A possible solution to the problem has

come from a learner participating in the Eskom Expo for Young Scientists. For over 30 years the Eskom Expo has been cultivating a passion for the sciences by providing participants with exposure to the exciting world of science, technology, engineering, mathematics and innovation (STEMI).

Simfumene Tshona, a Grade 11 learner from Nyanga Senior Secondary School in Engcobo, Eastern Cape has created a system that can monitor

and detect electricity theft and illegal connections.

Simfumene's project monitors the link between meter boxes and transformers where illegal connections are often made and directly tackles the point of illegal connection; in order to address this major challenge facing Eskom and municipalities across the country.

In recognition of this impressive innovation Simfumene won the award for Eskom Expo Best Female project when she competed at

the Mthatha Regional Eskom Expo.

“We see lots of interesting ideas coming out at the Eskom Expo but we are always excited by solutions that directly address the challenges that we face on a daily basis at Eskom. We are always looking for new ideas to stop illegal connections and prevent fatalities and this invention shows great potential as a solution!” said Pieter Pretorius, Chairman of the Board of Directors, Eskom Expo for Young Scientists.

## Jasco reduces carbon footprint by 50% with solar energy solution

LOCATED in Midrand, north of Johannesburg, Jasco Park houses over 250 of the firm's staff, as well as a data centre and various other amenities.

The team began the installation of a solar carport system in April 2015, leveraging the real estate available above the carports used by staff and visitors. Phase 1 of the project involved the installation of 53kWp of solar panels, accompanied by two 25kW inverters to generate up to 50kW AC power during peak generation periods.

Phase 2 saw the additional installation of a brand new solar carport system in the northern section of the Jasco

campus. This upgrade saw the total PV generation increase to 150kWp with an increase in inverter output power to 125kW AC.

The solar system remains ‘tied’ to the national grid, which enables seamless consumption between both the traditional power source and the new solar generation. Energy needs are primarily served by solar power and supported by the national grid where needed with back-up generators in the event of power cuts.

The benefits

By the end of the 2nd phase, the team had ef-

fectively matched the campus demand with a reliable supply of new, clean energy.

As a result of this initiative, Jasco has reduced its maximum demand by 27% and reduced its electrical consumption from the utility by 33%. Both these reductions have resulted in a significant financial savings, even at today's tariff structure. Projecting these savings going forward with Eskom's current request to increase electricity costs by 20% per annum, Jasco has largely insulated itself against future tariff price shocks.

Overall the carbon footprint has been reduced by 50% with an

expected payback time-frame of within 5-6 years, depending on rises of national energy tariffs and carbon taxes.

At certain periods of time such as at weekends, Jasco Park actually becomes a net exporter of energy – now selling energy back to the national grid and creating a new, growing revenue stream.

From their experiences with Jasco Park, the firm's Power Solutions & Renewable Energy team is able to focus on the engineering, procurement and construction requirements for solar energy systems in high-end residential, commercial and small-scale utility projects.



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## Sensor solutions in packaging

**COUNTAPULSE** Controls offers a broad range of opto-electronic sensors which have been developed to ensure packaging lines operate at peak cost efficiency to the packaging industry. Made by the respected German instrumentation manufacturer Leuze Electronic, the sensors are purpose-designed for the feeding, packing, dosing, detecting, labelling, sealing and other operations that go into the makeup of any packaged product.

Countapulse Controls' managing director, Gerry Bryant points out that the variety of materials used for packaging, as well as the surface properties and the specialised printing used in the industry require the highest standards of instrumentation and machinery:

"Modern, high-production packaging uses cutting edge technology, and sensors applied to these applications have to be capable of meeting the demanding requirements," he says.

Leuze is one of the leading developers and manufacturers of opto-electronic systems, which use light in various spectra for sensing, monitoring and controlling products and equipment in the production line.

This includes standard opto-electronic sensors, colour sen-



*The Leuze RK46C-VarOS retro-reflective photo-electric sensor is capable of detecting objects over an operating range of 0.4 to 5.2 metres, with a light band width of 45 to 50 mm.*

sors, label detectors and sensors for workplace safety. Also in the range are sensors for foil and glass detection, CCD sensors, forked photoelectric sensors and sensors for differentiating between glass and PET.

These can be effectively applied to hasten and improve quality control in any number of processes. In feeding and conveying, for instance, solid granules, loose goods, paste products, fluids or mixed items are transported, accumulated and passed on. Opto-electronic sensors are used to position products on conveyors, recognise their shapes, measure them for filling and sealing and even check the quality of printing and labelling.

"The many ways used to package products nowadays show the dynamics and bandwidth of the vari-

ous packaging technologies. Leuze has expended considerable research and development effort in producing its range of opto-electronic sensors, using concepts aimed at improving speed, accuracy and performance in the packaging line," Bryant says.

The complexity and depth of sensors available on the market can be confusing, and for this reason Countapulse Controls often assist customers in evaluating an application for either the fitment of new sensors or the retrofit of replacement units.

"While the Leuze sensor range is broad enough to offer units of the right type and size for virtually any operation in the line, we have found that in some instances we have sourced alternative sensor solutions for the customer," he says.

## Uptick in manufacturing positive for packaging industry

RECENT announcements by StatsSA indicating an uptick in manufacturing data offers the packaging industry an opportunity to ramp up the move towards digitising their production in preparation for further growth, says Bruce Peters, Regional manager in charge of manufacturing at Cisco Southern Africa.

Figures released by StatsSA on 10 October 2017 show that manufacturing production increased by 1,5% in August 2017 compared with August 2016.

Peters believes that, as the increase was mainly due to higher production in the basic iron and steel, non-ferrous metal products, metal products and machinery division (11,3% and contributing 2,0 percentage points), downstream manufacturers will take up this increased production and provide the packaging industry with slightly increased upstream demand.

"Meeting this demand, though, will require the packaging industry to take advantage of the window to reduce downtime by bringing their internal processes up to speed, and improving the services they offer," Peters says.

In a Cisco survey of more than 600 senior executives in 13 countries—from both industrial machine builders and end-user manufacturers—86% said the transition from product-centric to service-oriented revenue models is a core part of their growth strategies.

StatsSA announced that seasonally adjusted manufacturing production increased by 1,3% in the three months ended August 2017 compared with the previous three months. Six of the ten manufacturing divisions reported positive growth rates over this period.

The largest contributions to the 1,3% increase were made by the following divisions:

- basic iron and steel, non-ferrous metal products, metal products and machinery (2,5% and contributing 0,5 of a percentage point);
- petroleum, chemical products, rubber and plastic products (1,6% and contributing 0,4 of a percentage point);
- motor vehicles, parts and accessories and other transport

equipment (3,9% and contributing 0,3 of a percentage point); and

- furniture and 'other' manufacturing (7,1% and contributing 0,2 of a percentage point).

"It is telling that the two top contributing divisions are strongly related to the packaging industry. Stats SA's latest figures underscore findings in McKinsey's research released earlier this month, which point to consumer spending in Africa reaching \$2.1 trillion by 2025 in real 2015 prices. Consumer goods are, by definition, packaged, and I believe that the packaging industry can therefore expect an uptick as well," Peters says.

The McKinsey Global Institute has identified four groups of consumers that will drive much of Africa's consumption growth between now and 2025: those earning more than \$50 000 a year in North Africa and South Africa, Nigerian consumers, middle-income consumers in East Africa, and middle-income consumers in Central and West Africa.

These figures come in the wake of recently announced investments in the African packaging market. These include AB InBev



*Bruce Peters, Regional manager in charge of manufacturing at Cisco Southern Africa.*

investing in two new packaging lines for returnable glass bottles, Mpac announcing a new liquid packaging recycling plant, Golden Era partnering with a Nigerian beverage can manufacturer to build a large-scale beverage can plant, and Nampak, considered Africa's largest packaging company, investments in recent years both locally and in Angola and Nigeria.

Already in 2015, Deloitte predicted that the African continent would become "a high growth region for the packaging industry, with demand being driven by increased markets for consumer products, burgeoning individual incomes, an expanding population of youthful consumers and growing domestic economies—particularly those in East and West Africa".

Peters warns, though,

that the packaging industry will be negatively affected if it doesn't address digital transformation to reduce downtime.

"Complexity and a lack of digital capabilities are holding firms back. The top inhibitor to transitioning to a service model is the difficulty of managing a "two-front war"—products and services simultaneously. However, their ability to capture significant value and leapfrog competitors, hinges on accelerating to a service model," he says.

To resolve this service dilemma, the services and digital journeys must converge. "To unlock the full potential of the service model, while still improving products, industrial machine manufacturers and end-user manufacturers need to digitally transform their businesses," Peters says.

## ALPLA's acquisition of Boxmore approved

THE ALPLA takeover of Boxmore Packaging, which was subject to legal and regulatory approval by the competition authorities, has officially been approved.

The transaction, which was signed in July 2017, has been approved without conditions, resulting in ALPLA holding 100% of the issued share capital of Boxmore Packaging. ALPLA now has sole control over Boxmore Packaging.

This acquisition represents the largest for the Austrian manufacturer, which, prior to taking over Boxmore Packaging, already owned 163 production plants in more than 43 countries. It will add a further nine plants in three countries, and 1 000 employees through this acquisition.

The current Boxmore Packaging board and management team

under the leadership of Len Engelbrecht (CEO), will remain the same, and Engelbrecht will take on the additional responsibility of integrating and managing the existing ALPLA SA business. Meanwhile Christoph Riedlsperger, ALPLA's Regional Director for AMET (Africa, Middle East and Turkey) will oversee the combined business, which will fall under his divisional responsibilities.

Riedlsperger explained that Boxmore Packaging's well established Southern African and Indian Ocean Islands footprint, plus its market strength in the beverage sector in South Africa, were critical deciding factors in this buyout. Apart from these aspects, he shared, "We like how the com-

pany is managed and feel good chemistry with the management team."

Through this deal, ALPLA aims to change its packaging offering to FMCG customers in the region. In the markets that Boxmore Packaging currently operates, ALPLA's global technical team will accelerate project delivery and bring additional expertise to improve customer service. In categories that ALPLA SA currently services, e.g. extrusion blow moulded bottles, Boxmore Packaging's national and regional manufacturing footprint will enable the business to reach new customers. Through ALPLA, Boxmore Packaging will be able to better serve new FMCG categories with new products and services, a statement says.

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# Where there's muck there's brass

'WHERE there's muck there's brass' is a 20th century expression which originated in Yorkshire, England where brass is still used as a slang term for money. By 'muck' any form of dirt or manure may be implied, depending on context.

It's this interest, some say passion, for 'muck' and the odours that emanates from 'muck' that 33 years ago lead Mike Mayne to establish what turned into a multi-million rand South African success story, run today by three long-time friends who are now well into their golden years but still hard at it.

However, unlike many so called rival products that simply mask unpleasant odours associated with the human condition, products made by Sannitree are 100% environmentally friendly, biodegradable products for the treatment of organic waste & water – and by treating the cause, the smell goes too.

Today Sannitree is a biological international

company offering its customers a wide variety of microbial based products specifically related to waste treatment. It is a research-based company that by all accounts, is a world leader in its field.

The Sannitree journey began in Cape Town in 1984 when Mike Mayne initiated the idea of providing economical sewage treatment in rural areas, farms and settlement camps. At this early stage he realised the need to treat the sewage with something that would rapidly break it up, but at the same time not harm the environment. Together with Dr PG Celliers, one of the world's most respected enzymologists, they began testing, analysing and marketing their very first microbial based product, Sannitree® Bio-Enzymes. Mike was then joined by Gordon Bruce (Director, Finance and administration) and Brian Goodman (Director, Marketing & International Development).



A recent export order of Sannitree products – 2 000 kg bound for Ecuador.

Today, the group is represented by subsidiaries or agencies in more than 30 countries around the world.

Sannitree® International markets more than 15 niche products in granular and liquid form. Some formulations contain exciting and innovative improvement items such as a fly lavicide - harmless to resident bacteria, substitutions of masking perfumes with special long lasting fragrances which lock onto the causes of malodours coupled with sulphur retardants to minimise malodours

during the decomposition. All of which make its range hard to emulate.

The company has achieved a well proven reputation for quality and service and maintains and improves an ISO 9001:2015 Quality Management Programme in order to further endorse this position.

"Our business is built upon the topics which most of us would rather not talk about in polite company!" says Mayne, "and that is urine, faeces and blood – whether the origin is human or animal". He

fact Odour Digester is widely used in forensic clean-up operations and we have an association with one of the country's leading firms in this area, Crime Scene Solutions.

"Other applications include:

- Food processing plants, especially fish
- Cleaning textiles: carpets, curtains and upholstery
- Old age homes
- Potty training accidents
- Hospital laundry cleaning
- Organic stain removal on carpets.

"Our drought conditions have led to the development of specialised 'Pong' products such as Turf Pong, for the treatment of pet urine from artificial grass and Wee Pong that treats the odours associated with limited toilet flushing of urine.

"Also Tank Pong is a recent development for eliminating the odours in tanks used for the storage of dishwasher and washing machine waste water. Tank Pong fulfils two purposes; it reduces the smell of the waste water and the formulation contains harmless enzymes and bacteria

which speed up decomposition enabling safe use of your grey water for irrigation directly after application" he said.

Another of Sannitree innovations has been the Free-Flowing Waterless Urinal Valve which completely eliminates wasteful urinal flushing in public toilets. This patented product saves thousands of litres of water while eliminating costly sewer maintenance normally associated with conventional urinals. It features an airtight seal to keep toilets completely odourless without wasting water in the urinal. Units can be retrofitted to existing urinals and eliminate the need for cisterns and complicated mechanical or electrical flushing activation devices.

"Sannitree are innovators and as a new odour or waste problem arises, we tackle it. The pioneering work done by Dr Celliers have made our product formulations unique and thus far, our competitors have been unable to copy. A truly South African solution to a worldwide problem!" he enthused.

## SA must prioritise alternative waste-treatment technologies

WITH Johannesburg, Tshwane, and Cape Town all having less than ten years of useful landfill life left, the pressure is on to find alternative waste-treatment technologies (AWTT), argues Nicola Liversage, AECOM's Business Unit Director – Environment, Africa. Landfilling at an average density of 1 t/m<sup>3</sup> means that municipalities need an annual landfill space of about 10 million m<sup>3</sup>. While some municipalities like eThekweni boast a useful landfill life of 120 years, others such as Johannesburg, Cape Town and Tshwane have a limited useful landfill life of less than ten years.

"Therefore the need to investigate AWTT is crucial for diverting waste from landfill," highlights Liversage. Johannesburg, the eThekweni Metropolitan Municipality, Cape Town, and the Sedi-beng District Municipality have all completed AWTT feasibility studies, while the Drakenstein Local Municipality in the Western Cape has finalised a waste-to-energy feasibility study. AWTT feasibility studies are also under way in Tshwane and Ekurhuleni.

Material recovery



facilities (MRFs) have been established in some municipalities in order to recover recyclables. However, these are hampered by the low rate of recovery of recyclables. The absence of separating waste at source means facilities are operated as 'dirty' MRFs with high contamination rates and lower recovery rates, compared to 'clean' facilities with low contamination rates.

In the European Union (EU), separation at source has been key in enabling the diversion of waste from landfill by means of recycling, composting, and incineration. In South Africa, waste incineration is still small-scale, used mainly for the thermal treatment of healthcare and some hazardous waste.

Liversage points to environmental au-

thorisations, permitting, licencing and social issues as the main stumbling blocks. "In fact, it can take up to ten years between identifying a suitable site and actually commissioning a landfill," she adds.

Although the capex and maintenance costs of technologies for treating waste are substantial, landfilling remains less expensive than AWTT. However, the cost of landfilling may be even higher at the end of the day, given the cost of managing a landfill upon its closure. The life of a landfill may stretch to about 50 years after it closes. In addition, the absence of carbon taxes means that landfilling continues to dominate waste management in South Africa compared to AWTT, which is increasingly the norm in the EU.

*If it's yellow, let it mellow...*

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# Next generation of temperature controllers embrace the era of AI

OMRON is introducing their E5\_D series - the next generation of controllers built on the successful E5\_C platform. It is designed to achieve optimal and automatic temperature control without human intervention.

“Omron’s E5\_C series substantially raised the bar for temperature control in the past five years thanks to its user-friendliness, high precision and highly reliable control.”

Omron’s E5\_C series substantially raised the bar for temperature control in the past five years thanks to its user-friendliness, high precision and highly reliable control. Now, the E5\_D series - the next generation of controllers built on the successful E5\_C platform - is designed to achieve optimal and automatic

temperature control without human intervention. In fact, from now on all typical adjustments made in the field by experts are automated using Artificial Intelligence (A.I.). The E5\_D is based on the E5\_C platform so the basic features are the same (50msec control period, universal inputs measurements Thermocouples/Pt100/linear, and more) but with a draw-out structure to make maintenance even easier.

### Adaptive control algorithm

With standard temperature controllers, not only do you need a long time to define initial start-up PID settings, but it is also really challenging to make the optimal adjustments without having many years of experience in this area. That’s why Omron developed the E5\_D Series with “adaptive control technology”. This automatically detects changes in the process under control and adapts the PID accordingly. The result? Perfectly fine-tuned PID algorithm and ultra-stable temperature control.

### Perfect sealing

### temperature control for packaging machines

On a conventional sealing machine temperature sensors can often be located too far away from the sealing surface of the heating bar. This causes a difference between the temperature of the sealing surface and the temperature that was actually being controlled. This temperature difference and resulting sealing failures, increase as the packaging speed increases and also in correlation with thinner packaging materials.

Thanks to the E5\_D series, this issue is solved with the following approach:

- bringing sensor closer to the sealing surface - thanks to special temperature



sensor models for faster detection

- adopting special algorithms (automatic filter adjustment function) built-in E5\_D, specifically developed to suppress temperature variations. The result is a better sealing quality of the packages.

Temperature variations in molding machines minimized by a new algorithm

On a water-cooled extrusion molding machine, increasing the speed often leads to temperature variations due to various factors such as the material compound and cooling water. For the human operator this means repeatedly making valve adjustments to stabilize the quality. However, it is really difficult to achieve high speed produc-

tion while also maintaining the quality. Not any more with the E5\_D. The water-cooling output adjustment function suppresses the temperature variations to a minimum and raises the production capacity while maintaining quality.

### Characteristics

- Available in two sizes: E5CD (48x48mm) and E5ED (48x96mm)
- Both are capable of measuring a wide range of signal types from different sensors (12 different types of thermocouples, Pt100/jPt100 and different current/voltage linear signals).
- Control output types are, depending on the model, relay output 5A/250Vca, and Voltage output (12Vcc to drive external SSR).
- As with the E5\_C series, there are basic models without additional optional functionality as well as more advanced models supporting additional functionality such as event inputs, RS485 serial communication, and heater burn-outs.
- Power supply ranges: 100 to 240 VCA or 24VAC/DC.

# Fluke-lite range means everyone can afford a Fluke



FLUKE is known as a world leader in the manufacture of electronic test tools and software. From industrial electronic installation, maintenance and service to precision measurement and quality control, Fluke tools have, for the past 70 years, been helping to keep industry around the world up and running. Typical users include technicians, engineers, metrologists and computer network professionals who stake their reputations on their tools.

Fluke tools are renowned for portability, ruggedness, safety, ease of use and rigid quality standards. That’s why professionals’ tool of choice is a Fluke.

Now Comtest, local representative of Fluke products, has the Fluke-Lite range of affordable test and

measurement tools. A specially selected grouping of Fluke’s most reasonably priced products make up the range, which includes palm- and full-sized digital multimeters, current and ‘True RMS’ clamp meters, electrical testers, infra-red thermometers, two-pole testers, combo kits and various accessories.

Fluke-Lite products are compact, easy-to-use tools that deliver continuous, safe and reliable measurements and are available throughout South Africa. Naturally, all of the Fluke-Lite products carry Fluke warranties, and customers can access literature such as Data Sheets and Application Notes, information on upcoming seminars or demonstrations on their tool of choice, via Comtest’s website, [www.comtest.co.za](http://www.comtest.co.za).

# A step by step guide for testing control valve positioners

VALVES, the actuators that move them, and the electronic circuits that control them, are all subject to aging soon after they are installed. Valve seats wear from repeated seatings and from the liquid or gas that passes through them. A valve may be stroked up to tens of thousands of times a year, which causes screws to reposition, springs to weaken and mechanical linkage to loosen. Electronic components change value over time. All of that can produce valves that don’t fully open or close, close prematurely. This “calibration drift” can result in improper regulation of the gas or liquid under the valve’s control.

To keep valves operating properly, you need to periodically check electronic valve positioners. However, these checks need to be conducted quickly to minimize down time. If calibration drift is found, the valve positioner must also be recalibrated immediately. A good tool for this is handheld

field tester like the Fluke 789 ProcessMeter that can be used to test and recalibrate electronic valve positioners. It offers signal sourcing to simulate a controller connected to a valve positioner’s input and can continuously adjust the source current in incremental steps, so you can check the valve’s linearity and response time.

Here are the basic steps for checking a normally closed valve using a 789 ProcessMeter

- Set up the ProcessMeter in sourcing mode using the appropriate range of current for the positioner.
- Insert the source current test leads into the mA output jacks.
- Select the 4-20 mA range by moving the function switch from Off to the first mA output position.
- Connect the meter mA output to the input terminals of the valve positioner.
- To determine if the

positioner is fully closes the valve at 4 mA, adjust the source current to 4.0 mA using the push button. The valve should be closed.

- While watching the valve for any movement, press the Coarse Down button once to decrease the current to 3.9 mA. There should be no movement of the valve.
- In setting the point at which the valve starts to open, make sure there is no counter pressure by the actuator against the force holding the valve closed when there is 4.0 mA on the controller’s input. In a spring-to-close valve, there should be no pressure on the diaphragm. With a double acting piston actuator, there should be no pressure on one side of the piston. To ensure that there is no counter pressure at the closed setting, you may want to set the start of opening between

4.1 and 4.2 mA.

- To check the opening of the valve, press the Coarse Range Up button from 4.0 mA. Each press of the Coarse Range Up button will increase the current 0.1 mA. You should adjust the zero adjustment on the positioner to set the valve for the closing characteristic desired.
- To check the valve at the fully open position – called a span position check – adjust the source current to 20 mA using the range buttons and allow the valve to stabilize. While watching or

feeling for valve movement, press the Coarse Range Up button once to 20.1 mA. The valve movement should be as small as possible and can be adjusted using the span adjustment on the positioner.

- Using the coarse control, adjust current up and down between 20.1 mA and 19.9 mA. There should be no movement of the valve stem from 20.1 to 20 mA and slight movement from 20 mA and 19.9 mA.
- In most valves, there is an interaction between the zero and span

settings of a valve controller, so it is best to ensure proper valve position adjustment by repeating the test of the fully closed and fully open positions until no further adjustment is necessary.

- For valves with linear action, linearity can be checked by settings the ProcessMeter to 4 mA and using the % Step button to step the current to 12 mA (50%) and confirm the valve position indicator is at 50% travel. If your valve is a non-linear type, refer to the valve manual for proper

operation.

- To check for smooth valve operation, turn the rotary switch to output mA and select Slow Linear Ramp. Let the meter ramp the mA signal through several cycles while you watch or feel for any abnormal operation of the valve. The valve should NOT oscillate or hunt at any of the step positions of the Slow Ramp. The valve also should not be sluggish. Set the gain of the valve controller to a point that gives the best response between these two conditions.

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## Antifouling coatings improve vessels' efficiency



TWO new premium antifouling coatings – Globic 9500M and Globic 9500S – are claimed to offer customers a potential 2,5% reduction in speed loss. This, say makers Hempel A/S, equates to significant fuel savings and lower CO<sub>2</sub> emissions improving the operational efficiency of a vessel and minimising the operator's environmental footprint.

Building on proven Globic technology to deliver superior antifouling performance for new buildings and dry-dockings, these innovative coatings deliver an outstanding return on investment and flexibility – from outfitting through the entire docking interval.

The muscle behind this new coating range is a patented Nano acrylate technology that provides a fine polishing control mechanism to bring the integral biocides to the surface at a stable rate ensuring a clean hull. The uniqueness of this technology allows it to start working as soon as the hull meets the water for full and

immediate antifouling protection, making it highly efficient even for slow steaming and long idle periods.

Henrik Dyrholm, Global Product Manager, Hempel A/S comments:

“Globic 9500M (M for maintenance) is designed to protect against slime as well as soft and hard fouling in all conditions. Globic 9500S (S for static) is designed to protect against hard-fouling even during extended outfitting periods. Together these two coatings deliver unparalleled anti-fouling protection offering our customers improved operational efficiency, flexibility and a high return on investment.”

The Globic range is one of the most successful at Hempel and has been very well received in the market. Since its launch in 2005, over 25 million litres have been delivered worldwide with more than 5 000 vessel applications achieved. This new coating series is the next step in high performance antifouling protection.

## Rust-anode-rust-prevention-process

BMG's extensive range of sealing products includes Rust-Anode® - a cold galvanisation system, designed for rust prevention in diverse industries, particularly corrosive environments.

“Rust-Anode - a single component cold zinc rich coating that protects steel surfaces electro-chemically - is vastly different from anti-corrosion paints, in terms of composition of the material and its protection methods,” says Marc Gravett, business unit manager seals, BMG. “Unlike conventional anti-rust paints, which eventually decompose and crack, Rust-Anode prevents rust formation and inhibits the spreading of pre-existing rust.

“Rust-Anode is preferred to the hot-dip galvanisation process for steel constructions in light profiles or thin plates because the hot-dip bath can deform

light structures.”

Rust-Anode Primer, with high resistance to corrosion, abrasion and impact, can be used as a primer or as a duplex system with a compatible topcoat. This zinc grey material, with a matt finish, is applied directly onto a clean or rusted steel surface, with a brush, roller, or any spraying technique.

A layer of iron hydroxide is formed between the Rust-Anode and the steel surface, acting as an oxidation inhibitor, to prevent rust formation.

This ready-for-use product provides cathodic protection identical to hot dip galvanising, where the lifetime expectation is between ten and 50 years. The application of a compatible topcoat over Rust-Anode can increase this service life by approximately 2,5 times.

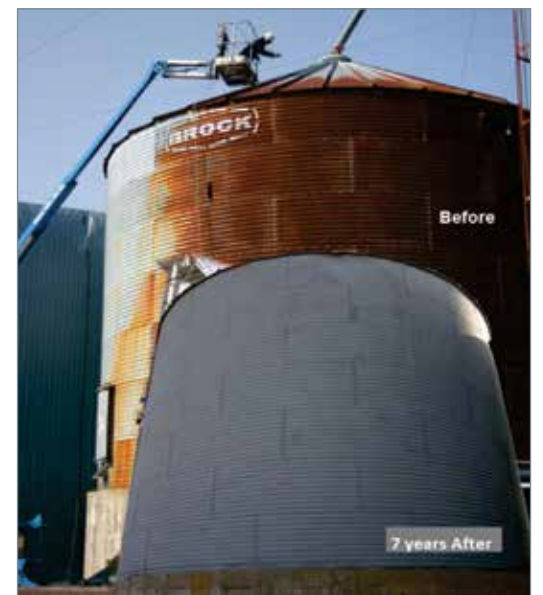
Rust-Anode, with scratch protection up

to 4mm deep, can be applied on top of a previous layer of this material and can also recharge the cathodic protection of old worn hot-dip galvanisation, without having to dismantle the structure.

There is no requirement for chemical processes of surface preparation prior to application, but the steel should be brushed, clean and contamination-free.

The Rust-Anode layer, with high plasticity, forms a perfect adhesion with the steel surface and follows the dilation and deformations of the basic metal, without cracking or peeling.

Rust-Anode and Rust-Anode Primers are non-toxic and non-flammable when dry. These ecologically green materials, with low VOC, have excellent resistance to corrosive marine environments and are not



BMG's extensive range of sealing products includes Rust-Anode® - a cold galvanisation system, designed for rust prevention in diverse industries, particularly corrosive environments.

affected by UV. These coatings can be applied in a Ph atmosphere range from 5,5 to 12,5 for resistance to acids/alkaline compounds.

Applications include cement factories, pa-

per mills, the railways and military, pipelines, bridges and electricity pylons. BMG supports this range with a technical advisory and back up service across sub-Saharan Africa.

## New Elcometer 456 Ultra/Scan probe

EVER since the development of the coating thickness gauge in the mid-1940's, dry film thickness measurement has relied upon individual measurements being compared to a coating's specification. With the introduction of digital coating thickness gauges, in addition to coating thickness measurements becoming easier, more accurate and repeatable than ever before, the task has become much more simplified.

Modern gauges, such as the Elcometer 456, have significant processing power built in – allowing users to

automatically compare thickness values to a coating's specification, display trend graphs, store the reading together with the date and time the reading was taken, into memory.

The gauge can even transfer data wirelessly to a mobile cell phone, recording the GPS coordinates of precisely where the measurement was taken. Measurement speeds have also increased significantly, almost doubling, from approximately 40 readings per minute back in the 1980's, to in excess of 70 readings per minute in the new Elcom-

eter 456.

At first glance, you may ask why this is important, especially if only a small number of readings need to be taken at any one location. The measurement speed is used by manufacturers to indicate how quickly an accurate reading can be taken and therefore how soon any subsequent reading can be made. Imagine, if you will, two inspectors measuring the dry film thickness of a pipeline. Inspector 1 is on one side of the pipe and Inspector 2 is on the opposite side. Both are tasked to take 3 spot measurements every 5 meters. If Inspector 1 is using a gauge with a measurement rate of 70 readings per minute, and Inspector 2, a gauge with 40 readings per minute, then it will not be too long before Inspector 1 is signifi-

cantly further ahead of Inspector 2. Other than the time it takes to move to the next measurement location, the limiting factor for increasing the measurement speed – thereby reducing the time taken to undertake a coating thickness inspection – is the time required to lift the probe off and replace it back on to the coated substrate. If the inspector can simply set up the gauge to automatically take a predetermined number of readings, without the need to lift the probe off the surface, then the measurement time can be increased even further.

When connected to the latest Elcometer 456 coating thickness gauge, the newly developed Elcometer 456 Ultra/Scan probe has a reading rate (in scan mode) in excess of 140

readings per minute - further enhancing the speed and accuracy of field based dry film coating thickness measurement on Ferrous (F) and non-Ferrous (NF) substrates. Each Ultra/Scan probe has been designed to take a 'snap on' replaceable end cap, so that the sliding action required to achieve a scan of a coated surface does not cause any wear to the probe tip, crucial to maintaining the accuracy of the probe over its life.

Using the Elcometer 456's patented offset feature, the thickness of the cap is excluded from any coating thickness measurement and, as the cap wears during use, the wear effect is also accounted for. The gauge will even display a warning message when the wear cap needs to be replaced.

### Quality Control Instrumentation

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#### Elcometer 456 Dry Film Coating Thickness Gauge

- Scan probe for measuring large areas quickly
- Fastest gauge on market - >140 readings per min
- Bluetooth / USB output to ElcoMaster software
- Accuracy ±1%, Repeatability, Range: up to 31mm



#### Elcometer 319 Dewpoint Meter with Bluetooth

- Temp, RH, Delta T, Surface Temp – all in one unit with Bluetooth
- Easy menu-driven user interface
- Hand held gauge or as a stand-alone data logger
- Create reports using ElcoMaster™ Software
- Precise accurate measurement



#### Elcometer 224 Digital Surface Profile Gauges

- Accurate, immediate and repeatable results, also on curved surfaces, 60+ r/min
- Cost per test is significantly lower than other test methods such as Testex Tape
- Connect to ElcoMaster for easy generation of reports



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## Trust the Israelis to meet a market demand

Continued from back page

It has also been run successfully in extreme hot and extreme cold conditions, according to the manufacturers.

Adopting the IKEA principle, the digester comes in a flat pack and can be assembled by a practical person. No trained plumber is required.

It is also relatively unobtrusive in a garden. Once it gets going it can provide free heat to a four burner stove. Keep it fed and it will do this week in and week out. Its manufacturers claim that for those living entirely off the grid it can also run gas lamps.

In a suburban

situation the digester takes up as much room as an average double door fridge on its side. It will supply gas up to 20 m away.

Now, here's the thing: If this clever machine was affordable to the average South African family – and by that I means the average of every one of them across the socio economic spectrum – what might be the result? In considering the possible outcomes, one must assume no regulations will be imposed to prevent such digesters being used in the cities and towns.

First springing to

mind is the impact on the electricity supplied (or rather commandeered) by our municipalities, for these bureaucrats place a hefty premium on the bulk supply price they get from Eskom. It is a handy source of extra cash to not only keep the electricity reticulation system going, but to also pay the salaries and guarantee the yearly increases and bonuses they award themselves.

So far, the score if this was a soccer match would be Jo Public – 1; Municipality 0. But the game would not be over because with whatever speed the local council

could manage a by-law would soon be passed to tax the use of digesters to compensate for the drop in income.

But for a while at least the PBRs (poor bloody ratepayers) would be able to taste freedom.

What else might occur from freely available, cheap and efficient digesters for home use? Well, there is nothing particularly special about the design or the materials used in their making, so local manufacturing under licence would be logical. And, given the dropping value of the Rand, the prospect of a

new export trade might beckon.

Best of all, the ability of many more people to move away from the cities to the smaller dorps would be enhanced. Braver sorts might even establish new towns without municipal utilities. Modern drilling rigs can go down to sources of water far below the water table, so these new towns could be virtually anywhere.

Oh Brave New World! A life of freedom from regulators, municipal clerks and other pettifogging officials.

One can always dream.

## How climate change is killing our food chain – turning crops into junk food

We could end up starving with full stomachs

A shocking new report shows how little our experts have paid attention to the impact of climate change on our food chain versus rising sea levels and more extreme storms.

It turns out the biggest calamity that increasing temperatures pose to human life has been uncovered by one man who found that hotter weather is turning our crops into Junk Food. He discovered that the food I ate as a baby in 1950 had substantially more nutrients than what a baby eating today's crops is getting. In fact, we are all getting fewer nutrients from our food as a result.

So, by doing nothing about our rising CO2 levels in the atmosphere we could soon find ourselves in a situation where people could starve with full stomachs. Ponder that. It means the end of life itself.

A Trump officials recently said: "We like hotter temperatures; it makes the plants grow faster." Yes it does, but it turns out that this faster growth has a huge negative effect; faster growth decreases the nutrients in the food that humans and their babies need in their diet, things like zinc and iron. To make up for it, the plant is substituting sugar instead. The study showed the impact on the lower food chain – the fish ate until they were full, yet still died of starvation because the food had less nutrients.

THAT is our future unless we start attacking our overheating emissions as if it were the North Korea missile crisis. Here is the link to our Global American facebook page where the article is posted: <https://www.facebook.com/GlobalAmericanValues/>

Ignoring this research means that we

are committing planetary suicide, which is not the mark of an "intelligent species." It is the mark of gross negligence and stupidity. This is time to act; not for putting our heads in the sand, doing nothing and pretending it isn't happening.

Hurricanes Harvey and Irma brought this home to me personally when the gas stations had no gas for days after the storms because it swamped our refineries and blocked our roads under water. It is the emissions from billions of cars we drive with gas and diesel engines and billions of factories spewing their emissions into the air the last 200 years that is causing the heating that is killing our food chain. That threatens the future of your kids and grandkids.

Today climate change is already costs billions in losses and killing peo-

ple in extreme heat and extreme storm events. The 1 300mm of rain in Houston during Harvey has never happened before. Having multiple CAT 5 hurricanes in the Atlantic at the same time is another first. The last two years has seen multiple CAT 5 storms in the Pacific, some with wind speeds that would be a CAT 6 or 7, far beyond the present scale.

After Harvey, if we had been equipped with electric cars with a solar panel roof and a wind turbine charger at home, we would have been able to drive without issues (other than needing pontoons for the high water on the roads.) Every hurricane I go through does the same thing -nearly 25% of the USA gasoline is refined in our area. It showed me how vulnerable we are to our energy being knocked out – either by storm or a major bomb attack that would take down our fu-

elling system for months or years.

America must re-join the Paris Agreement on climate and begin to rapidly transform towards renewable fuels and electric engines. India has announced is going all electric within 10 years and China is following suit. (China and India are almost half the world's population). Europe is banning diesel and gas engines by 2040 but even that is not soon enough. All of them are being choked by pollution from burning fuel. The countries that exploit the cleaner technology first will be the biggest winners.

Failure to act could mean failure to eat in the not too distant future. What kind of legacy is that to leave to your heirs? Think about that the next time this administration panders to the fossil fuel industry that is killing our planet and our food chain.

## Stopping the rot

TODAY, several statements are being made as to how the economy can be restored or how a new ANC leader can reverse the economy by, inter alia, creating a "reform agenda that will strengthen property rights, creating job opportunities for poor people" and to "remove barriers for investment," or by "regulatory and policy certainty, if corruption can be stopped," and that "the demise of the ANC will happen in 2024."

However, there is only one way in which the economy can be

restored and how a new leader can reverse the country and the economy and it is a total return to a capitalist economic system. The system that the ANC rejected after 1994, but which is still the only economic system in the world today how growth is being created! Even in Russia and China, who eventually became America's largest trading partners. The mixed socialist and communist economic system that the ANC operates cannot provide "regulatory and policy security" and

does not create economic growth, it can only destroy growth. Economic growth is driven by profit, which can also attract investments, and it's also the only way to create jobs and not the other way around. This means that growth and job creation are in fact totally dependent on the profitability of the economy. Lower interest rates can, in fact, not stimulate or create economic growth, because the Reserve Bank's interest rate policy simply does not play such an important role in the economy as

almost all economists believe.

If the ANC does not make this paradigm shift, then there is no way that the party can survive until 2024, even if it wins the election in 2019. No other party will survive if the economy does not grow, which means that the country could even totally collapse before 2024 into an underdeveloped country, such as in the rest of Africa, with a dictator as the ruler of the country that will wipe out its opposition and will finally shatter the economy and the coun-

try. As much as 85% of the population will become depended on agriculture, which it will not be able to sustain. Food production will be virtually destroyed at that stage if the land is expropriated with or without compensation and divided into small farms units which will not economically be viable as it will mean a poverty trap for small black subsistence farmers. Many people will die from the unprecedented famine that will prevail and many others will experience greater poverty with no livelihood prospects.

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# Here's to a Happy New Year!

"Top o' the morning!" bellowed The Governor at his assembled customers, who were looking unusually down in the mouth. To be fair, this happens only about once a year, when the usually vibrant congregation of conversationalists stay up beyond their various bedtimes to welcome the coming of the New Year. But there's a remedy for that, and The Governor was pouring it.

"Not so loud, please Guv," grumbled Luke the Dude, who looked as if he had not slept at all.

"Harrumph," teased The Governor, "youngsters of today. Can't hold their liquor."

"Call this witches' brew liquor?" The Dude's sense of humour was not in attendance. "Where do you smuggle it from anyway? The nearest sangoma?"

Sweet Angie, our perfect bartender, lowered the temperatures by offering Luke a specially frozen glass, "just for you".

Big Ben changed the subject altogether. "And so Prof," he queried, "what is your take on all these political developments over the festive season?"

"Useless!" declared Jon the Joker.

"Roll on the guillotine," advised Jean-Jay in his down-to-earth way.

"Ask not for whom the bell tolls, it tolls for thee," warned Bob the Book.

"I am afraid Robert is correct," opined The Prof darkly, "I am not convinced the powers that be realise how very deep the hole is into which we have been misgoverned. And if you can be sure of one prediction for 2018, it is that the chickens will be coming home to roost.

"Whoa!" protested Luke the Dude, "that is way too heavy for a bruised man on his first beer! Later, Prof, later. Just allow me to overtake Mr Hangover in his diesel."

Big Ben did not agree and wished the learned discussion to proceed as he also did not agree with The Prof. However, the remainder of the – on the day – not-so-bright lights felt that for once The Dude was right.

Jean-Jay spoke for the rest of us when he ordered an entrée, s'il vous plaît, before the main course."

"Hmm," condescended The Prof. "I am afraid I do not have lower-caloried fare for you. Any ideas, Robert?"

Bob the Book had none, but fortunately for the majority of the unbright, Jon the Joker had a clue.

"Now there is one thing you must understand," he insisted, "I did not make this up. It was sent to me by a golfing friend in the insurance industry who also moonlights as a lawyer and writes the occasional piece for a newspaper. I have his word as treble reliable source that it is the gospel truth, word for word.

"It concerns one of my friend's clients, whom he was assisting with a claim after an

accident at work, and my friend wanted me to understand what a complicated job he had. I have the client's letter, written with some assistance from my friend, right here:

Dear Sir,

I am writing in response to your request for additional information in Block 3 of the accident report form. I put 'poor planning' as the cause of my accident. You asked for a fuller explanation, and I trust the following details will be sufficient:

I am a bricklayer by trade. On the day of the accident, I was working alone on the roof of a new six-story building. When I completed my work, I found that I had some bricks left over which, when weighed later were found to be slightly in excess of 300 kg. Rather than carry the bricks down by hand, I decided to lower them in a barrel by using a pulley, which was attached to the side of the building on the sixth floor.

Securing the rope at ground I went up to the roof, swung the barrel out and loaded the bricks into it. Then I went down and untied the rope, holding it tightly to ensure a slow descent of the bricks. You will note in Block 11 of the accident report form that I weigh 90 kg. Due to my surprise at being jerked off the ground so suddenly, I lost my presence of mind and forgot to let go of the rope. Needless to say, I proceeded at a rapid rate up the side of the building. In the vicinity of the third floor, I met the barrel, which was now proceeding downward at an equally impressive speed.

This explained the fractured skull, minor abrasions and the broken collar bone, as listed in section 3 of the accident report form. Slowed only slightly, I continued my rapid ascent, not stopping until the fingers of my right hand were two knuckles deep into the pulley.

Fortunately by this time I had regained my presence of mind and was able to hold tightly to the rope, in spite of beginning to experience pain. At approximately the same time, however, the barrel of bricks hit the ground and the bottom fell out of the barrel. Now devoid of the weight of the bricks, that barrel weighed approximately 25 kg. I refer you again to my weight.

As you can imagine, I began a rapid descent, down the side of the building. In the vicinity of the third floor, I met the barrel coming up. This accounts for the two fractured ankles, broken tooth and several lacerations of my legs and lower body.

Here my luck began to change slightly. The encounter with the barrel seemed to slow me enough to lessen my injuries when I fell into the pile of bricks and fortunately only three vertebrae were cracked.

I am sorry to report, however, as I lay there on the pile of bricks, in pain, unable to move, I again lost my composure and

presence of mind and let go of the rope and I lay there watching the empty barrel begin its journey back down onto me. This explains the two broken legs. I hope this answers your inquiry.

Yours sincerely

The congregated intelligentsia of the local pub and grill found this dish suitably light for the morning after a heavy night. Colin the Golfer had his doubts though: "Load of bollocks, boy. Who really wrote this?"

Tellingly, Jon the Joker was not annoyed. "I present it to you as I received it from my usually reliable sources," he said innocently. "My mate and his client composed it."

Colin the Golfer would not let go: "Too clever by half, boyo, remember what that other comedian, Emo Philips, said: A computer once beat me at chess, but it was no match for me at kickboxing."

Bob the Book also added a quote to express his feelings on the matter; as a man of letters he chose Mark Twain, who had wisely observed: "The more I learn about people, the more I like my dog."

"Useless," opined Jon the Joker.

I don't usually interfere in these debates but it was, after all, a new year. (Go figure. – Ed)

"Gentlemen! Ladies and gentlemen," I interfered. "I believe I have a solution. I'll report Jon's true story in the next edition of On the Contrary. If nobody claims it as theirs, then Jon is obviously a factual journalist and we enter him for the award as insurance writer of the year."

"Cogitate that," said The Prof.

"Ha!" said Colin the Golfer. "And what happens if half of Cape Town claim ownership? What do you do then, boy?"

## OPINION

### ON THE CONTRARY



Pieter Schoombee

"Why Colin my old mate of The Nineteenth Hole," I blushed, "you compliment me. I was not aware that my humble words are read by half of Cape Town. (Nice try. – Ed) But I'll tell you what. If they do claim ownership, then we credit them. How would that do?"

"Useful," admitted Jon the Joker behind his pint glass.

"Fair enough," nodded Stevie the Poet, who had recently attended a PEN course on copyright.

"Okay fine," insisted Big Ben, who never knows when to stop. "Enough of the starter. Can we now get on with the main course and let The Prof do his thing? I am keen to hear his thoughts on the so-called mess we are in. All of it fake news, if you ask me."

"Who asked you?" asked Luke the Dude.

"There you go again," exasperated Irene the Queen, "you haven't even heard what The Prof has to say and you are already playing the Trump card!"

"Well," said The Prof, "young Benjamin asked a question and he will get an answer: Not today, lad. There is always another time. The ANC is not going away."

And thus another round was ordered.

E-mail: noag@maxitec.co.za

## Trust the Israelis to meet a market demand

As well as having the only working western democracy in the Middle East, the Israelis have more than their fair share of entrepreneurs on the look-out for ways of meeting a market demand and thereby providing a service to the public, the taxman, and (shudder) a profit for themselves.

A quick and easy Internet search will turn up the "top 40 Israeli inventions" before you can say "Jack Rubenstein" or "Bob's Your Uncle". Try searching for Jewish Nobel Prize Winners and an even more impressive list is available – not that I have tried.

But, recently, while investigating ways in which I could make myself as independent as possible of bureaucracy, and thereby minimise the regular deductions from my monthly income into the coffers of those who exist in the safe world of the ironically named Public Service, I came across yet another Israeli invention.

This latest version is not available in South Africa and its cost, though affordable in US dollars or Israeli Shekels, is beyond the pocket of those of us trapped by an ever diminishing Rand. What are available are

**THE OTHER SIDE OF THE COIN**

Keith Bryer

earlier versions at a hefty R 50 787 price tag. Nevertheless, since the invention in question is not on the market here, plugging its merits may be forgiven. It is simply ingenious. That alone makes it newsworthy.

It is a way of enabling an ordinary household to generate methane gas for cooking, using scraps of food, cat litter, and garden clippings with a bonus of 10 litres a day of liquid fertilizer. So, waste-to-gas-to-fertilizer-to-plants-to-waste again. I think that is called an ecosystem.

In other words it is a methane digester of the sort that should gladden the hearts of fans of self sufficiency (except those zealots who think carbon emissions from any source are an existential threat to the planet).

Methane or swamp gas is also emitted from swamps and bogs, but since that does not bother them maybe this digester will find favour.

There are all sorts of such devices but this one requires no special heaters to operate.

Continued on P31

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