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African Review

of BUSINESS and TECHNOLOGY

February 2015

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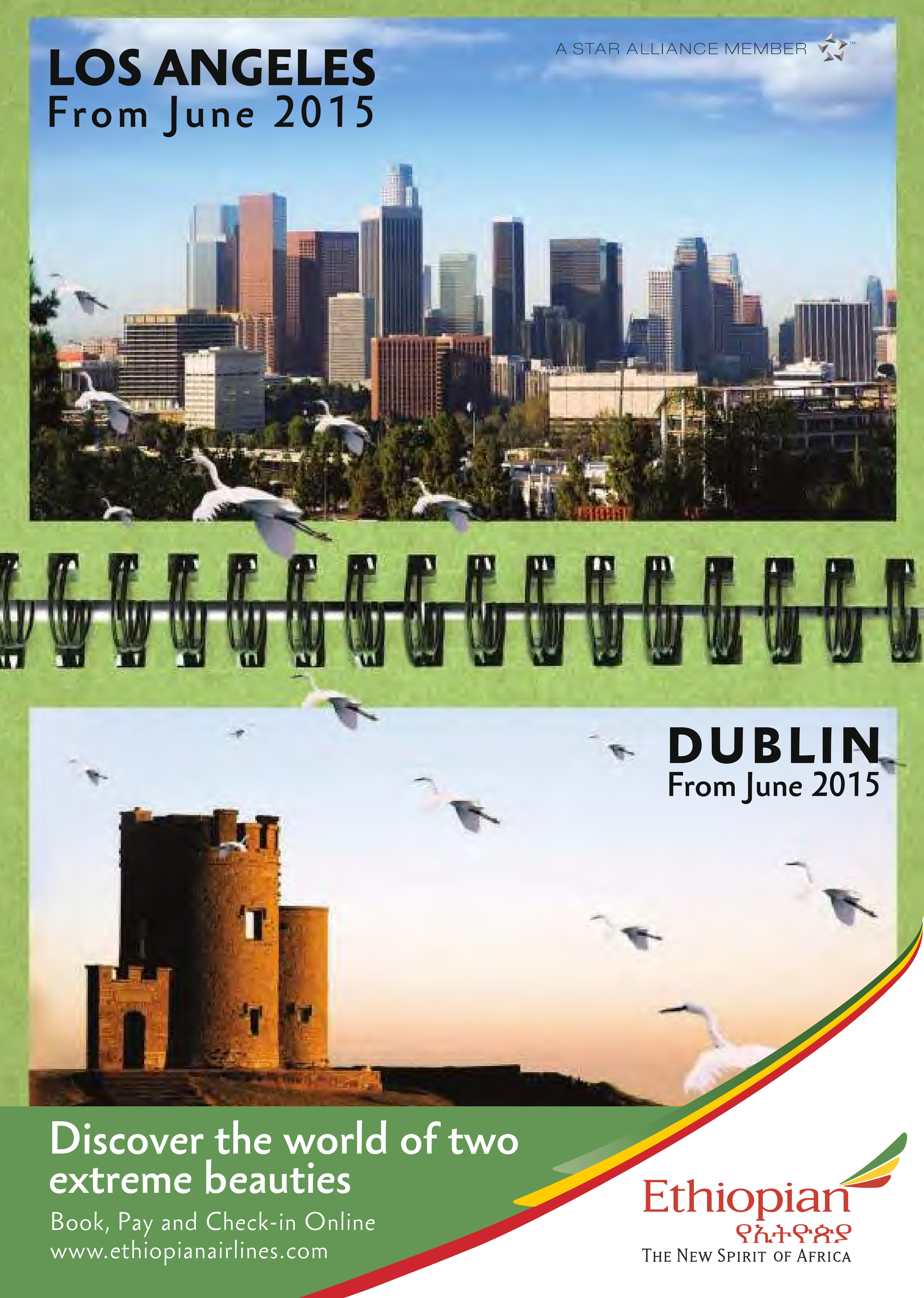

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THE NEW SPIRIT OF AFRICA

Editor's Note

From pages 18 through to 32, the focus is on business and finance. This issue features analysis of West African economies affected by Ebola, and prospects for fresh economic growth in Ghana and in Kenya. there is, also, a critical assessment of security at African financial institutions. From page 40 to page 53, the focus is on power generation and distribution. There are articles, in these pages, on local manufacturing support for South Africa's nuclear industry, on generator maintenance and utilisation, on oil & gas infrastructure, and on finance for energy networks. between page 54 and page 71, this issue features reports on the construction sector. Herein, news and views are offered on investment in new housing projects, the production and application of polymers, innovations in safety curtains, and observations on the general performance and prospects of Africa's construction markets. There are, also, features on industrial control by construction companies to reduce risks and lower costs, on the manufacture and use of clay bricks throughout the continent, and on alternative building technologies for new residences. Pages 72 to 85 address mining developments. there is a preview of Mining Indaba, a look at new accommodation for mine workers, an assessment of Russia's platinum partnership with Zimbabwe, observations on risk management, and West African iron extraction and processing.

Andrew Croft, Editor

Cover picture: Metric Automotive Engineering
Inset, top: Atlas Copco
Inset, bottom: UNHCR

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Agenda / North

Carthagène International Hospital purchases Inmesol technology

SEEI manager Mourad Najjar and Inmesol sales manager for Africa José María Hernández in front of the equipment installed in Carthagène International Hospital Centre

In Tunisia, the prestigious **Carthagène International Hospital (CIH)** has placed its trust in the quality and reliability of **Inmesol** equipment, purchasing an IP-880 emergency generator set for its facilities. To prevent unwanted noise on the premises, CIH has installed the generator set inside robust Inmesol casing, which provides excellent soundproofing, with atmospheric accoustic emission levels below the values established by a European Directive.

Because of their activities, it is vitally important that hospitals have a guaranteed power supply. Inmesol's emergency generator sets are designed to operate automatically when there is a failure in the mains power supply, for efficient maximum stand-by performance safely by optimising the electricity load thanks to its sophisticated and innovative control panel, which means that it can adapt to the specific supply needs.

Carthagène International Hospital Centre, which is strategically located in the north of Tunis city centre, is a top class health centre specialising in lithotripsy, radiology, ophthalmology, resuscitation, maternity, general surgery, neurosurgery, and ENT, cardiovascular, genitourinary, thoracic, orthopaedic, maxillofacial and plastic surgery.

ABB solution to serve Algeria

Power and automation technology group **ABB** is now committed to orders from **Ansaldo Energia**, Italy's largest supplier, installer and service provider for power generation plants and components, to supply a plant automation system and substation expansion for the new Ain Djasser III gas-fired power plant in the northern province of Batna, Algeria.

The plant is operated by **Sociéte Algérienne de Production de l'Electricité**, Algeria's largest power generation company.

ABB is providing a distributed control system for the 340 megawatt (MW) (in ISO conditions) open cycle power plant based on the Symphony Plus total plant automation platform.

The solution includes the platform's intuitive and easy-to-use S+ Operations human machine interface. there is, also, a Symphony Harmony rack I/O (input/output) based turbine control system.

Content drives MENA satellite industry growth

With the media market in the Middle East and North Africa (MENA) expected to grow from US$16bn in 2014 to US$24bn in 2019, the satellite technology event CABSAT examines industry trends and highlight how companies can adopt products and strategies to drive monetisation and growth opportunities.

CABSAT addresses the broadcast, production, content delivery, digital media and satellite sectors across Middle East, Africa and South Asia (MEASA) territories, representing the ways in which media and entertainment organisations are driving innovation into their businesses and content offerings amid the convergence of broadcast, film, production, Internet, telecommunications and consumer electronics sectors. The 2015 event, which runs from 10-12 March and is hosted by **Dubai World Trade Centre (DWTC)**, will present disruptive trends delivering transformational change to the region via a roster of new and enhanced features, including specialist conferences and training sessions, satellite talks, an all-new content market place, and an enlarged content delivery hub.

"CABSAT 2015 provides a dedicated industry platform for regional media companies to absorb innovation-driven, best-practice business strategies to enhance their products," said Trixie LohMirmand, senior vice president, exhibitions & events management at DWTC. "Research shows that emerging markets are due to surpass established markets in digital universe percentage share by 2020. CABSAT is the number one regional platform to connect live content opportunities and enhance collaboration between regional and international content owners, operators and distributors."

Agenda / East

Grofin Group opens Zambian office

A development financier with a risk capital in excess of US$400mn, **Grofin Group** has launched a micro-finance firm to assist small and medium-scale entrepreneurs (SMEs) access finance and business support.

Grofin operates in 14 countries in Africa and the Middle East, has assisted over 7,000 businesses. The company provides business support to small and growing businesses requiring between US$100,000 to US$1.5mn financing. According to Grofin Zambia's investment executive director, Chibamba Lopa, the firm has already disbursed about US$4mn in the country and will endeavour to enhance the performance of entrepreneurs.

''Over the past two years, Grofin initiated enquiries into the local market. This marks the official launch of the company, Grofin's local office is comprised of a Lusaka-based team of Zambian professionals who are committed to addressing the finance and business support needs of entrepreneurs," he said recently.

Mr Lopa also said in Lusaka recently that the decision to come to Zambia was based on several strategic factors such as the growing economy, solid and improving business environment.

The company has already provided business support and finance to local entrepreneurs ranging from poultry farms, hotels and industrial equipment suppliers.

And the country's government says it will continue to offer fair and equitable economic policies to attract more investors.

According to Ministry of Finance permanent secretary Felix Nkulukusa, Government will put in place policies that will attract more investors to create employment and reduce poverty levels in the country.

In recognition of the challenges entrepreneurs face, Government, in partnership with Grofin, will offer business support services and development assistance by providing opportunities for businesses to achieve sustained market linkages.

''We are proud that we are the most recent country in sub-Saharan Africa in which Grofin is investing. The ministry and Grofin will help SMEs to overcome the challenges in the sector by providing access to appropriate levels of business and capital, among other services," he elaborated.

Through the access to capital that Grofin will provide, business will be able to experience long-term growth and as a result, SMEs in Zambia will be able to create sustainable, equitable and permanent jobs in the country. As a resuktm Grofin, sustained over 16, 000 jobs and, through the multiplier effect, resulting in over US$1.9bn in terms of economic impact.

Mawa Mutumweno

Faster Web access at MTN Rwanda

MTN Rwanda has launched its fourth generation long term evolution (4G LTE) broadband Internet service, and has added 42 new 3.75G sites in Kigali, aimed at bringing even speedier service to its customers. LTE uses the most advanced telecommunications technologies and standards in the world to enable connectvity at unparallelled speed, reliability, quality and ease of use. Popularly known as 4G, LTE is a standard for wireless communication of high-speed data. 4G LTE data networks provide mobile ultra-broadband Internet access.

The introduction of 4G LTE is a key development for the ICT sector in Rwanda. Robert Rwakabogo, senior manager of marketing operations at MTN Rwanda, said, "The Internet experience has become better, faster, easier, and more reliable with the introduction ofthis new technology. This will drive Rwandans to reach their full potential whilst simultaneously accelerating mobile broadband penetration, thereby boosting major economic activity."

KNCCI digitalises and automates for trade

TradeMark East Africa (TMEA) and the **Kenya National Chamber of Commerce and Industry (KNCCI)** have signed a Ksh7.5mn (US$82,000) agreement to support the design and development of an online portal to automate issuance of Certificate of Origin, an export instrument that allows exporters duty preferences while accessing the requisite exports destination markets. The signing event was attended by Dr Chris Kiptoo, TMEA Kenya country director, and Charles Mbogori, CEO of KNCCI.

The agreement between KNCCI and TMEA is a milestone for Kenyan trade. Mr Mbogori said, "The automation process includes membership automation as well as the certificate of origin and KNCCI will be able to register members online from the county chambers as well as at the national level. The application, verification, approvals and payments would all be undertaken online and this would assist KNCCI in service delivery to members and also enhance recruitment process."

The KNCCI web portal is part of the Kenyan government's digitisation process, which affects other government agencies including **Kenya Bureau of Standards (KEBS)**, **Kenya Revenue Authority (KRA)** and **Kenya Trade Network Agency (KENTRADE)**.

Dr Kiptoo observed, "The e-portal will improve delivery of services to traders expediting the processing of certificates which will reduce costs that traders and exporters experience as a result of delays."

The portal will enhance export document security whilst supporting the trade facilitation objectives of the Kenyan government. KNCCI stakeholders (members and non-members alike) can apply for certificates of origin online, access trade information, apply for and renew membership, and submit payments.

Agenda / South

TransUnion introduces intelligence to South Africa's insurance industry

South African credit and information management provider **TransUnion** has launched Claims Enabler, a one-stop solution for the insurance industry that empowers faster, more efficient claims processing. Claims Enabler integrates multiple data sets across the TransUnion portfolio, aggregating all of the information insurance providers need to make faster, more accurate decisions and expedite the claims process for enhanced customer service.

"While all of the data used in Claims Enabler was already available from TransUnion, it required collating from a variety of different sources. Now, insurers can access this intelligence far more quickly, with customised reporting available depending on their requirements. This unique offering is the only solution on the market that incorporates consumer credit and automotive and insurance information into a single reporting solution. By bringing these databases together into a single, intuitive reporting interface, insurers can gain maximum output from minimum input," said Ian Logan, senior director dusiness development: insurance and partners at TransUnion.

Claims Enabler is composed of Insurance Data Systems (IDS) data along with a number of other data sets for a complete and accurate decision around claims. These include fraud scoring and HAWK fraud protect, which monitors identity and address and facilitates the flagging of anomalies that can highlight potential fraud. The solution also comprises IDV identity verification, consumer credit report and profile, AIS vehicle valuation and verification and eNatis data to enable the verification of drivers' licenses as well as registered vehicle status.

At the claims screening stage, this enables efficient prioritisation and quicker fulfilment. During claims processing or investigations, Claims Enabler provides validation and verification as well as automated processing to expedite applications and increase productivity.

CWG acknowledged by VMware

Computer Warehouse Group Plc (CWG) has been recognised as the Solution Provider of the Year and Renewals Partner of the Year in West East and Central Africa (WECA) at the annual VMware Channels award ceremony, which was held recently in Johannesburg, South Africa.

The award ceremony was organised by **VMware**, CWG's original equipment manufacturer partner, to recognise the dedication of its partners, acknowledged for outstanding achievements in sales, performance and customer satisfaction every year.

L-R: Dayo Abegunde, associate vice president at Computer Warehouse Group Plc (CWG), receiving the VMware Renewals Partner of the Year award from Emmanuel Adeogun, Nigeria country manager at VMware Incorporation

Industry push at Pumps Valves & Pipes Africa

Global forecasts of increased growth in the pumps, valves and pipes sector also reflects market realities and growth predictions in Africa. This is quite evident, based on strong industry support for the forthcoming Pumps, Valves & Pipes Africa (PVPA) Expo. A number of major players - including foreign companies and local staunch supporters - have already signed up for this popular event, which takes place from 20 to 22 May 2015 at Gallagher Convention Centre in Gauteng, South Africa.

Regional and international interest in the PVPA show - now in its ninth year - has never been greater, according to show organiser John Thomson of **Exhibition Management Services**.

"Rising global demand for water pumps is a direct result of massive urbanisation and industrialisation around the world," said Thomson. "Research by **Population Action International** shows that by 2025, more than 2.8bn people in 48 countries will face water scarcity; 40 of these countries are in West Asia, North Africa and Sub-Saharan Africa. The PVPA Expo is proving once again to be an ideal platform for suppliers to reach new and existing markets and explore the opportunities there. Worldwide interest in doing business in Africa is as strong as ever."

Moreover, many governments - including several in Africa - are pushing industries to recycle and re-use water, and encouraging water pump manufacturers to develop energy-efficient products to reduce power bills of users.

"The world's top 10 water pump manufacturers hold over 50 per cent of the market in highly competitive developed regions, while developing economies like Africa still offer brighter and more robust growth opportunities, perhaps for smaller players. Africa's water-related technology market is expected to grow to US$700mn by 2020, and its manufacturing market to US$200bn," said Thomson.

We have learnt that Africa can help us. **GROWING TOGETHER.**

HEINEKEN has had a close relationship with Africa for more than one hundred years. In this time, we've learnt the importance of partnering for growth. To this end, we are committed to sourcing 60% of our agricultural raw materials from farmers in Africa by 2020. Today, collaborative projects are flourishing in the Democratic Republic of Congo (DRC), Nigeria, Sierra-Leone, Egypt, Rwanda, Burundi, South Africa and Ethiopia.

We launched our barley project in Ethiopia in 2013 together with the Dutch Government, our NGO partner Eucord, Ethiopia's Agricultural Transformation Agency (ATA) and the Ethiopian Institute of Agricultural Research (EIAR). An extensive programme has been put in place: from testing, then selecting the most appropriate barley varieties for the Ethiopian soil and climate to training smallholder barley farmers. Today, improved seeds are already being used to deliver better quality barley, higher yields and increased household income. So far more than 6,000 farmers have reaped the benefits of our project; we aim to reach 20,000 by 2017.

This successful collaboration between community and our company is also beneficial for us. It is helping to create a sustainable source of raw materials, a shorter supply chain, a reduction in transport and importation costs and a lower carbon footprint. We truly are *growing together.*

Many people still believe that Africa needs help. We have learnt that Africa can help us.

HEINEKEN

Agenda / West

Allott completes evaluation of Lagos airport road

One of Nigeria's leading technical consulting brands, **Allott ((Nigeria) Limited** has recently completed traffic & tolling studies for the development of the thoroughfare to and from the Murtala Mohammed Airport (MMA) in Lagos, as part of its commitment to the project concessionaire, **China Harbour Engineering Company (CHEC)**.

The project road is an important gateway to Nigeria and to the city of Lagos, stretching from from Apapa-Oworonshoki Expressway and heading westwards towards Murtala Mohamed Airport for a distance of approximately 3.6km. MMA is the nations busiest airport, handling 6.75mn passengers (61 per cent domestic and 39 per cent international) in 2011, representing some 45 per cent of Nigeria's total air passenger movements. As Nigeria' biggest airport, it is an important facilitator of access to national and global markets - the airport acts as a generator of trade and tourism; connecting people to states, countries and cultures supporting important social, cultural, political, technical and commercial exchanges and knowledge transfers in the commercial capital of the biggest African economy.

MMA road studies have been led by Attahiru Usman of Allott, and by Leo Xiao of China Habour Engineer Company

The road is currently a four-lane carriageway, and is subject to congestion throughout the day, leading to inconvenience and delays for travelling passengers. The concessionaire has been awarded a period for 25 years from completion, including the construction period. The proposed development entails expansion to an eight-lane carriageway with 2.75m hard shoulders along each carriageway and the provision of a number of pedestrian and vehicular bridges at key locations along its length.

The studies were undertaken within the defined study area to get data required to develop a traffic and tolling revenue model for the road over the whole period of the concession. The series of surveys undertaken included:

- Roadside interview surveys (RSIs), in which some drivers were stopped at defined locations and asked about their trip or journey details.
- Manual classified counts (MCCs), which entailed counting the number of vehicles by type (e.g, car, motorcycles, LGV, HGV, etc) passing defined locations or entering or turning at a junction of interest.
- Automatic traffic counts (ATCs), which required counting the number of vehicles passing defined locations.
- A stated preference (SP) survey, which establishes drivers' preferences for the existing and the proposed reconstructed road from Onitsha to Enugu, and for two proposed bridges.

Vodafone, Vodacom, Safaricom act on Ebola

Telecommunications companies **Vodafone**, **Vodacom** and **Safaricom** are supporting the deployment of medical specialists in areas in West Africa most affected by Ebola. The three entities committed US$1.25mn to the African Union (AU)'s 'United Against Ebola' appeal, and to **Médecins Sans Frontières (MSF)** and Vodafone HealthLine in Ghana.

Vodafone Group donated US$500,000 to the AU's appeal. Vodacom (which is majority-owned by Vodafone) and Safaricom (Vodafone's affiliate in Kenya) have each contributed US$250,000 to the appeal.

The Vodafone Foundation, Vodafone's philanthropic arm, is also supporting the effort to ensure medical attention and advice reaches the people who need it most. The Foundation has given a total of $250,000 to Médecins Sans Frontières, helping with the NGO's supply of medical support and resources during the Ebola outbreak, and the Vodafone HealthLine programme, the medical advice and information service from Vodafone Ghana. The funds donated to Vodafone HealthLine in Ghana have been used to increase capacity, as there has been a rise in calls to the service with more people enquiring about symptoms in wake of the Ebola outbreak. Prompted by MSF's response to the Ebola outbreak, the Vodafone Foundation made an £80,000 (US$125,000) donation to support its work.

Safaricom, Vodacom and Vodafone Ghana have also been harnessing the power of mobile technology to help raise further funds in the countries in which they operate. They are part of an **African Union**-led SMS fundraising campaign, which uses the short code 7979 with local adaptations. People have been asked to text 'Stop Ebola' to this code in order to donate in their respective countries.

Vodafone Group Foundation Director Andrew Dunnett said: "There is an urgent need to act fast to provide medical attention for people in the hardest hit areas of West Africa. The African Union's appeal is bringing together companies with a presence all over Africa to provide much-needed, immediate medical support, while mobile technology, the most powerful communications platform across Africa, will provide a means for further fundraising to help fight the Ebola outbreak."

Events / 2015

March

1-5
Djibouti International Trade Fair
Djibouti
www.prime-exhibitions.ae

2-3
PetroForum Africa
Johannesburg, South Africa
www.openroomevents.com

2-4
Infrastructure Project Financing Africa
Cape Town, South Africa
www.marcusevans.com

2-4
Middle East Electricity
Dubai, UAE
www.middleeastelectricity.com

4-7
MEDIBAT
Sfax, Tunisia
www.salon-medibat.com

10-11
Cards & Payments Africa
Johannesburg, South Africa
www.terrapinn.com

11-12
Mining Summit Africa
Cape Town, South Africa
africa.miningsummit.com

16-17
Africa CEO Forum
Abidjan, Côte d'Ivoire
www.theafricaceoforum.com

16-19
Nigeria Oil & Gas
Abuja, Nigeria
www.cwcnog.com

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Propak East Africa
Nairobi, Kenya
www.propakeastafrica.com

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IT Leaders Africa
Johannesburg, South Africa
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Power & Electricity World Africa
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www.terrapinn.com

25-26
Bonds & Loans Africa
Cape Town, Africa
www.bondsloansafrica.com

25-26
Intermodal Africa
Lagos, Nigeria
www.transportevents.com

Intersec showcases access system technologies

Strong demand for access control systems in the Middle East and Africa (MEA) has paved the way for the world's leading commercial security providers to showcase their latest solutions when the 17th edition of Intersec opens in Dubai, in the UAE.

Worth US$200mn in 2014, the MEA access control market is estimated to grow 15 per cent annually up to 2018, when it will reach nearly US$500mn, according to consultancy firm Frost & Sullivan.

The double-digit growth is fuelled by increased infrastructure spending across the region, including investment in wireless locks, IP-enabled devices, iris detection systems and other access control technologies.

Taking place 18-20 January at the Dubai International Convention and Exhibition Centre, Intersec featured more than 1,200 exhibitors, with 300 specialising in access control systems such as access cards, physical access (locks, bollards, turnstiles, gates), and biometrics (finger prints, palm geometry, vein, and facial technology).

Among the world's top ten commercial security providers exhibiting at the three-day event were Swedish lock manufacturer ASSA ABLOY, which launched a range of new products including Yale ENTR – a wireless smart lock solution that allows users to control door locks from smartphones, tablets and other Bluetooth enabled devices.

Canadian safety and security specialist Genetec showcased its innovative Security Center which unifies IP-based video surveillance, access control (Synergis) and automatic number plate recognition (ANPR) into one platform.

Other global commercial security providers showcasing access control systems at Intersec 2015 included: ARH, Bosch Security Systems, Business Automation & Security Systems, Panasonic, Samsung, Techwin, Videotec, Kaba Central Services, and Nedap.

Major local players were also out in force - including Al Falak Middle East, one of the region's largest security specialists, which is targeting 15-20 per cent annual business growth leading up to the Dubai Expo 2020.

Fellow UAE-based exhibitor Al-Taaraf Electronics also has high hopes for the regional security market for 2015 and beyond, and launched its Display Command and Control Centre and other products at Intersec 2015.

Sohaib Siddiqui, projects director at Al-Taaraf Electronics, said, "As more and more public infrastructure comes about across the Middle East and Africa, the need to have better and more complex access control and security systems will increase incrementally.

"We foresee security to be of utmost importance all over the globe, and the new security directives taken by most countries in the Middle East will definitely boost security sense at all levels of society."

Bulletin / Materials handling

Terex Washing Sytems hosts wash plant showcase

A division of lifting and materials handling solutions entity, Terex Washing Sytems (TWS) hosted an open day recently in Chambellay, France, attracting more than 80 guests including TWS dealers and their customers, who had the opportunity to see the Terex Aggwash 60-1 wash plant operating at first hand; participants included a representative of Vemat SARL, TWS' Moroccan distributor, with a customer.

TWS Moroccan Distributor with his customer at the open event

APC Storage Solutions offers lifetime warranty in SA

An industry-first in South Africa, APC Storage Solutions SA avails its customers of a lifetime warranty, with all new racking and shelving products, including APC-completed assemblies. Fred Albrecht, managing director, APC Storage Solutions SA, said, "We have refined our manufacturing and installation processes to the extent that, with the right care, installations can easily last a lifetime. Only graded steel, treated with advanced anti-rust processes, is used in our racking and shelving systems. We also have tremendous faith in the Mecalux-engineered structural designs, which exceed most safety and operating standards."

PC Storage Solutions SA offers a lifetime warranty

Superior screening operations with the Sandvik SK2462

A new circular stroke inclined screen – the SK2462 - is now offered within the new SK&SC range from Sandvik Construction, to enable aggregate producers, quarries and other associated businesses, to accurately and efficiently screen material during the secondary or tertiary stage of the process; able to effectively operate in both wet and dry operating conditions, the SK2462 screen efficiently deals with most applications providing customers with leading levels of versatility, performance and flexibility.y

A full spectrum of services from Enginet engineers

Enginet Projects' engineers have a wealth of experience in bulk materials handling, and the expertise to design and implement conveying, handling and storage of any bulk materials. The company covers in-plant conveyors, overland conveyors, pipe conveyors, and belt feeders. It provides a complete project package on bulk materials storage, underground conveying systems, silos and belt feeders, mobile stacking and conveying systems, rapid loading and loadout terminals, mass flow hoppers, stacking and reclaiming equipment, and specialised chute design.

Materials handling with Manitou and GEHL solutions

As an accredited dealer of Manitou and GEHL materials handling solutions, Dezzo Equipment can deliver high-end solutions to tackle any operational requirement. Dezzo Equipment stocks a comprehensive range of rough terrain forklifts, skid steer loaders, access platforms, telescopic handlers, piggy back forklifts and an extensive range of Manilift equipment including; warehousing equipment and forklifts.

Flexicon menables metal detection in sanitary systems

Flexicon Corporation offers a stainless steel, sanitary bulk bag filler, which detects and separates metal as it fills bulk bags by weight, dust-free. The filler frame is a patented Twin-Centerpost design, which maximises strength, reduces cost and improves accessibility to bag hooks. It is equipped with an integral metal detector/separator, which detects metal in the free-fall stream of material entering the filler, and then ejects it through a chute that discharges into a removable drum at the rear of the unit. The filler also incorporates: fill head height adjustment to accept all popular bag sizes; an inflatable cuff forming a high-integrity seal to the bag inlet spout; a blower to remove bag creases prior to filling; load cells for filling by weight; a vent port for dust-free air displacement during filling; pneumatically retractable bag hooks; and an automated vibratory deaeration/densification system to maximise capacity and stabilise the bag for storage and shipment.

Silafrica's role in the industrial logistics of materials handling

The use of plastic products in material handling not only has a positive impact on productivity, profitability and resource conservation, but it also contributes to ecological preservation. Thanks to a long experience of over five decades and the breadth and variety of its product range, Silafrica is now the largest manufacturer of plastic crates and it has the design and systems expertise to develop a wide range of unique solutions for its customers. The company's plastic crates are much sought-after by various industries ranging from food and beverages, agriculture, seafood and allied businesses. The key concern that its operations is the maintenance and assurance of credibility and quaility.

Bulletin / Communications

SATcase set for search & rescue

A deceptively simple concept, SATcase instantly transforms a mobile phone into a satellite phone, enabling contact anywhere, irrespective of mobile signal; Jim Thomson, founder & CEO of SATcase, said, "By combining ordinary smart phones with satellite technology and adding search and rescue features, we have created an incredibly easy to use piece of equipment that is compact, rugged and fully functional - and most importantly, will most certainly save lives."

SATcase has excited interest from governments, health and safety organisations, and emergency services

Ebola tips shared by mobile

West African multimedia campaign #ISurvivedEbola has launched an interactive mobile app that allows Ebola survivors to connect with each other, share public health advice, and update the world on the challenges they face, post-recovery; according to Rafael Obregon at UNICEF, #ISurvivedEbola provides "information in multiple, highly entertaining forms, including through the testimonies of actual survivors".

An app from Atlas Copco

The construction technique business area division of Atlas Copco now offers an application for use with Apple and Android devices, tablets and smart phones, which enables access to a huge store of information about the company's extensive range of products and services for the construction sector, and keeps the user up-to-date with the latest news about the construction market and has a host of other useful features such as videos for training purposes and interviews about Atlas Copco's operations; based on the user's location, it will give information on the location and contact details of the nearest Atlas Copco Customer Center.

Atlas Copco is designed to be a daily working tool that makes life simpler for everyone involved in using, purchasing or selling the company's equipment

African Review/On the Web

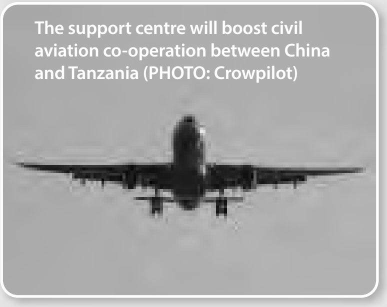
A selection of product innovations and recent service developments for African business. Full information can be found on *www.africanreview.com*

China aviation association launches Tanzanian support centre

The Aviation Industry Corporation of China (AVIC) has launched a field aircraft support centre in Tanzania to provide services to civil aircraft operators in Africa.

Additionally, a state-owned Chinese aerospace and defence company has agreed to provide technical services, supply spare parts and assist with planning joint ventures with local firms including Air Tanzania Company Limited (ATCL).

Milton Lazaro, acting CEO of ATCL, said, "The alliance between ATCL and AVIC is aimed at enhancing domestic and regional air network within Tanzania and Africa as well as the whole world. Through such cooperation, we are very sure that even the number of our aircraft is going to increase and we can expand services."



The support centre will boost civil aviation co-operation between China and Tanzania (PHOTO: Crowpilot)

africanreview.com/transport-a-logistics

Sierra Leone government forms two new power utilities

Sierra Leone has "unbundled" various electricity providers and integrated them to form two entities – the Electricity Generation and Transmission Company (EGCT) and the Electricity Distribution and Supply Company (EDSA).

Sierra Leone's minister of energy said the country's electricity sector had been experiencing an "epileptic power supply" (PHOTO: E. Huybrechts)

The West African nation's National Power Authority, Bo/Kenema Power Station and other local providers have been "unbundled" or dissolved to form a different entity. The unbundling, according to government officials, is part of attempts to transform the country's power sector.

Ambassador Henry Olufemi Macauley, minister of energy in Sierra Leone, said, "The country's electricity sector has been experiencing epileptic and unreliable power supply, creating a harsh environment for economic development and foreign investment."

africanreview.com/energy-a-power

There are the direct and indirect effects having the sickness and mortality themselves, which increase the burden on healthcare resources and subtract people either temporarily or permanently from the labour force.

Acting for infrastructure and institutions

The road ahead for entities supporting the recovery and development of Ebola-affected countries

The Ebola epidemic has undone a decade of economic progress in sub West Africa region, resulting in "incalculable" human and monetary losses in three core-affected countries – Guinea, Liberia and Sierra Leone, where the World Bank projects negative or contracting growth in 2015 under (high-Ebola) scenario, as they work with international partners to eradicate the virus.

Besides loss of life, such evidence suggests that Ebola has manifested its impact on general economic activity through multiple channels such as:

- The costs of reduced productivity due to significant falls in labour and capital utilisations. Reported decline in labour force participation – caused by fear, controls, and restrictions on movement – has reduced the productive capacity of the economy with many workers absent from workplaces over a longer period.
- The mining sector has been singled out, given its importance and the fact that its production and export volumes depend mainly on the presence of expatriates. Major iron ore producers such as London Mining and African Minerals in Sierra Leone and ArcelorMittal and China Union in Liberia have either scaled back or shut down their operations temporarily, leading to reductions in national output. In three hardest-hit countries, mineral exports fell sharply in the second half of 2014. Weak iron ore prices are having adverse effects on exports and government revenues through lower royalty receipts, which are based on global commodity prices. Furthermore, restrictions on the movement of people have severely curtailed artisanal mining, including of gold and diamonds.
- Foreign direct investment (FDI) fell sharply because of heightened uncertainties about the future and interruptions to international travel and communication. In Liberia, investments to expand annual iron ore capacity at the largest mining company (ArcelorMittal) to 15mn tonnes are currently being put on-hold.
- Trade (or transactions) costs have risen over the past six months; such costs arise when goods are brought from the border for (imports) or from domestic suppliers to the border (for exports) and sales of domestic output domestically, respectively. High trade costs have led to spiraling consumer price inflation.
- External aid and grants from the bilateral- and multilateral donors to sub West Africa region have increased substantially from last summer, especially for purchases of goods/supplies, core logistics, training, and investment in rural health centres to contain Ebola. The World Bank is mobilising nearly US$1bn to finance three worst-hit economies. This includes US$518mn for the epidemic response and at least $450mn from International Finance Corp (IFC); a member of the World Bank Group, in commercial financing to enable cross-border trade, investment, and employment in Guinea, Liberia, and Sierra Leone.

Motivation and participation

First, there are the direct and indirect effects having the sickness and mortality themselves, which increase the burden on healthcare resources and subtract people either temporarily or permanently from the labour force. This is followed by 'behavioural effects' arising from the fear of contagion that leads to a fear of association with others and reduces labour force participation, closes places of employment, disrupts transportation, motivates some governments to close land borders and restrict entry of citizens from afflicted countries, and motivates private businesses to disrupt trade, travel and commerce by cancelling scheduled commercial flights and reducing shipping and cargo services.

The shocks to transaction costs (both domestic and international), to labour force participation and capital utilisation were reportedly the worst in Liberia.

Immensurable costs

The World Bank's latest projections imply forgone income across three worst-affected countries in 2014-15, totalling more than US$2bn. All three had been growing rapidly in recent years and into the first half of 2014. The forfeited gross domestic product (GDP) in 2015 amounts to between US$$129mn in Low-Ebola case and a striking US$815mn in High Ebola case (2013 dollars). Guinea, Liberia and Sierra Leone account for about one-tenth of West Africa's GDP.

Taking the two years together for West Africa region as a whole, the World Bank estimates a moderate loss in GDP volume in [Low Ebola case] of US$3.8bn and in [high-Ebola case] a substantial US$32.6bn by the end of 2015. That is 4.1 per cent of what regional GDP would have been in the absence of Ebola in 2014. This is an enormous cost, not only for the most affected countries, but also for the wider region. It has the potential to be deeply destabilising and requires an immediate international response. "While there are signs of progress, as long as the epidemic continues, the human and economic impact will only grow more devastating," warns Jim Yong Kim, president of the World Bank Group.

The Bank's report finds that total fiscal impact in 2014 alone exceeded US$500mn, which imposed additional budget needs of six, three and 2.5 per cent of GDP, respectively, in Liberia, Guinea and Sierra Leone. Governments have had to cut public capital expenditures by over US$160mn, hurting future growth prospects. Fiscal deficits need to widen to enable the countries to accommodate higher Ebola-related spending and to help avoid an even more pronounced decline in economic activity. But there remain larger financing gaps for 2015, more support from the donor community is urgently required to assist the affected countries cope with human tragedies and improve their public health systems, thereby building up resilience and preparedness for potential future outbreaks.

The way forward

Militate against 'aversion behaviour': The magnitude of estimated impacts suggests the need over time for a concerted action plan to help the three countries in post-Ebola economic rehabilitation, thus returning their respective economies to robust growth and abating negative perceptions that can harm the sub-region even after the situation on the ground has improved. The real danger is that adverse sentiment leads to a dramatic closure of business at a time when these fledgling countries desperately need higher levels of FDI and foreign trade.

Jin-Yong Cai, CEO of IFC, explained, "The fear swirling around Ebola has the potential to do long-term harm to businesses globally, and especially in Ebola-affected countries. IFC will find and create opportunities to encourage private investors to play a large role in the recovery of markets directly and indirectly affected by the ongoing Ebola outbreak in West Africa."

Fiscal support: Strong growth, which is critically needed in the hardest-hit countries over the medium-term, is becoming elusive. Increased external assistance will enable respective governments to continue functioning and providing services as they and their partners seek to eradicate the epidemic. The fiscal gap, just for 2014, was estimated at around US$290mn. The estimates of immediate humanitarian costs from the United Nations and the World Health Organisation (WHO) have been revised upward, from US$495mn to US$600mn.

Monetary costs can be limited if swift national and international responses succeed in containing the epidemic and bring back investors (notably mining companies), whilst mitigating the 'fear factor' resulting from people's concerns about contagion, which could fuel steep economic downturn across the region. Marcelo Giugale, senior director of the macroeconomics and fiscal management global practice at the World Bank said, "A full-fledged recovery effort could help the affected countries improve on growth estimates, and return to building their economies and reducing poverty."

Restoring global confidence: A key issue in post-crisis period is re-establishing investor

> **"Strong growth, which is critically needed in the hardest-hit countries over the medium-term, is becoming elusive. Increased external assistance will enable respective governments to continue functioning and providing services as they and their partners seek to eradicate the epidemic. "**

There have been behavioural effects arising from fear of contagion, which ultimately limits labour force participation

support so that as the epidemic is contained, domestic and foreign investments can return. There is an urgent need for policies to encourage commercial exchange (for business, trade and eventually tourism purposes) with the sub-region, while also safeguarding partners from epidemiological contagion. This, in turn, requires funding to improve health security infrastructure and to seaport and airport protocols in the three countries and their neighbours.

Looking ahead, the memory of the 2014 havoc must be sustained with continuous emphasis on expanded disease surveillance, diagnostic, and treatment capacity facilities after Ebola outbreak has been contained. The international community should act on the knowledge that decrepit public health infrastructure, institutions, and systems in many African countries are equally a threat to their own citizens, trading partners and global economy at large. "The Ebola outbreak has laid bare the failure of any reasoning that investments in public health infrastructure, institutions, and systems can be separated from investments in economic recovery and development. Building the infrastructure, institutions, and systems necessary to prevent future outbreaks (of Ebola or other pathogens) confers benefits that are non-rival and non-excludable," urged the World Bank. ■

Moin Siddiqi, economist

Tracking the spread of the Ebola virus across West Africa

The National Geospatial-Intelligence Agency (NGA) recently released a series of Image City Map products, derived from DigitalGlobe satellite imagery and human geography data sets, which are playing a key role in the international effort to combat the Ebola crisis in western Africa. A broad coalition of governments and non-governmental organizations are leveraging this unclassified and sharable foundational geospatial intelligence to support response operations and anticipate emerging disease patterns.

"This proactive and forward-leaning government-industry partnership is crucial when it comes to preparing for and responding to humanitarian crises of all kinds," said William Arras, vice-president of US Government customer experience at DigitalGlobe.

The satellite imagery is available via NGA's

NGA is monitoring West Africa t support Ebola relief efforts

EnhancedView programme, which is helping military operators, civilian healthcare workers, international partner nations and volunteers understand events on the ground with daily new collections across the region. NGA has also released country-scale DigitalGlobe human geography data layers, including information on the region's demographics, critical infrastructure, economies, ethnicities, education levels, environment, medical facilities, and significant events – all of which can inform relief efforts and operational planning.

Arras affirmed that analysts can use the information to understand better "where infrastructure is located, where the disease has the greatest risk of transmission, and what populations are most at risk."

Martin Cox, National Geospatial-Intelligence officer for Africa and mission manager for the Ebola GEOINT response, added, "Our partnership with DigitalGlobe to provide geospatial information and mapping products to the largest audience possible is crucial in supporting the international community and healthcare personnel in West Africa as they respond to the Ebola crisis."

Why Ghana must grow with Singapore

Consensus on the benefits of Singaporean urban design and infrastructure models

Consultants in Singapore are eager to share an ethos-based on nation-building and urban management with African entities to advance sustainable development

It is long overdue, Ghana needs to enter into a formal agreement with Singapore on a comprehensive economic paradigm shift as obtains in this phenomenal Southeast Asian country to ensure the West African nation's rapid development.

Ghana's economy has been undergoing challenges over the years after the overthrow of its first president, Dr Kwame Nkrumah. Ghana's economic growth has been slowing and its budget deficit has been at double digit for two years running, with a stockpile of payment arrears. The country's external current account deficit has been ballooning as well while public debt has been rising rapidly.

The local currency had been depreciating rapidly for not less than 15 months until it gained a marginal increase recently. Over the same period, inflation has risen steadily back to double digit.

The World Bank together with European Union (EU) and other partners is expected to contribute about two billion dollars in financial support for an IMF programme. The whole success of the Singaporean economy hinges strongly on education. By education, it does not simply mean any other system of education. The focus was on technical and vocational schools. Singapore devoted maximum number of years developing its human resources by contracting international experts to train their unskilled workers in information technology, petrochemicals and electronics. These international experts responsible for such invaluable educational services were from the multinational corporations. Singapore's greatest resource is its people. This category of people were,

among others, taught to be honest, dedicated to the country's vision, hopes and aspirations and be prepared to sacrifice their all, for the advancement of their country.

Developing policies for economic growth

These virtues were made manifest as a result of honest leadership by the famous Lee Kuan Yew and subsequent leaders.

The Singapore government saw the need to embark on industrial policy to encourage the development and growth of the manufacturing sector of the economy. With an interventionist policy by government, it helped to improve the competitiveness of domestic firms. The government resorted to import substitution and export-led industrialisation, giving Singapore the opportunity to begin raking into its national coffers enough revenue. It also invested heavily in information technology, making it, currently, a destination of major electronic companies globally.

Singapore's urbanisation experience, and ability to maintain its competitiveness through the continual upgrading of its economy supported by sound urban development strategy is encouraging. It's integrated master planning and dynamic urban governance that have underpinned the country's transformation into a liveable and sustainable city must be imbibed by all countries in Africa.

Regarding Singapore's city management and planning over the last 50 years, it has been acknowledged that, the consultancy Surbana has helped to create Singapore's commercial and residential environment, with a million homes for over 80 per cent of the population in an integrated living environment. The consultants are eager to share an ethos based on nation-building and urban management with African entities to advance sustainable development.

Countries such as South Africa, Rwanda, DR Congo, Nigeria and Angola are already benefitting from Singapore's urban designs and master plans. For instance, Rwanda's capital city, Kigali will soon be transformed into a modern city with more developments to follow, in the coming years. It is no wonder that Rwanda's President, Paul Kagame has described Singapore as a role model. With such a mindset, it is conclusive that the Rwandan leader is determined to replicate the Singaporean model in his country. Rwanda has come a long way since the strife of the 1990s and wishes to make amends by giving its people continuous peace, stability, unity and development.

In 2011, Faure Gnassingbe, President of Togo paid a two-day official visit to Singapore with the purpose of developing political and economic relations with the Asian power. The Togolese leader met with Ministers of Foreign Affairs and Trade and Industry and with leaders of the Singapore Co-operation Enterprise (SCE), the government agency controlled by the Ministry of Foreign Affairs and the Department of Trade and Industry to meet the demands of foreign countries who want to learn from the Singaporean experience.

Replicating industrial success

Undoubtedly, Gnassingbe is dreaming of replicating the Singapore model in Togo. Indeed, the Asian country owes its prosperity to banking and financial services (second place in Asia after Japan), the port and containers (second port in the world by volume after Shanghai), shipyards, refining, armaments and electronics.

The Togolese authorities expressed interest in two particular areas – the expertise in the management of ports and freezones. Singapore's interest in Africa is palpable. Apart from its myriad investments on the continent of Africa, each year, the "Africa Singapore Business Forum", plans of a unique meeting place for doing business on the continent. How well are African countries taking advantage of such annual fora to quickly shore up their economies? It is not just warmly welcoming Singaporean investors into the continent and expect them to create some employments for the people, African countries must endeavour to benefit from Singapore's technology transfer to enable them to execute projects on their own and Ghana is no exception.

What Ghana needs to do is develop its human capital and not to concentrate too much on controlling its mineral resources. The country is duty-bound to enhance the level of capacity of its citizens and the education of children.

The importance of education and training

What is of paramount importance to Ghana is that it must quickly resort to training its people in diverse areas of work in order for them to be useful to society. Students who do not do well to gain admission to tertiary institutions should be trained in areas where they are talented enough to get employed. The point is, for everybody to be very useful in the society, there is the need for excellent training across professions. This means everybody would exhibit commitment in whatever he or she is doing for the society because they would have found themselves in their natural areas of competence.

Even though Ghana has not reached very far in implementing such a laudable model of development, she must be congratulated for creating the environment for such a culture to pervade the entire fabric of society in the coming years. Through the ingenuity of Apostle Dr Kwadwo Safo, founder and CEO of Kantanka Automobile Group, Ghana will gradually be marching towards the Singapore's prosperity destination.

It is heartwarming and satisfying that Kantanka Automobile Group, a wholely Ghanaian entity and producers of Kantanka vehicles has produced in commercial quantities for the Ghanaian market in Q4 2014 after successful installation of its assembling plants at Gomoa Mpota in the Central Region of Ghana.

The facility has about one hundred and fifty vehicles made up of pick-ups and sports utility vehicles (SUVs) unveiled to the general public.

Reportedly, Apostle Dr Kwadwo Safo announced, after years of research, that the group is ready to produce in commercial quantities.

There have already been test runs with positive outcomes. The plant is comparable to any automobile assembling facility globally, however, improving the quality of its work by assembling imported vehicle parts from China and other parts of the world, including locally manufactured parts. For now, it is capable of producing eight vehicles a day and will be in a position to increase its quantities to twelve or more depending on market demand.

It is a positive attitude from government that it is expecting to buy more of the vehicles produced by the company since resourcing state institutions is one of its major priorities.

According to the operations manager Kojo Kudzordzi, phase two of the project will entail the rolling out of saloon cars and that will be by the end of 2015.

Indeed, the Kantanka project has gone down well with the government as president of the Institution of Engineering and Technology, Rev Ing Eric Ankrah indicated that the institution was in full support of the facility and promised that it would help to transform the plant by accrediting it as a Centre of Excellence for Competence Based Approach to assist in training the youth for the job market, adding, "This is the policy of the government."

Ghana needs many talented persons like Apostle Dr Safo to offer quality training in different areas of work with full support coming from government to help concretise such a valuable system of education if indeed, Ghana wants to become like Singapore in a reasonable number of years to come. ■

Emmanuel Yartey

Kenya's public and private sector potentials

The most recent and significant developments affecting East Africa's economic hub

Despite the slump in the tourism sector along the Kenyan coast, the East African nation was able to attain 5.8 per cent GDP growth in the financial year 2013-14. According to the Kenya National Bureau of Statistics, the economy expanded fairly well compared to the 4.1 per cent recorded in the 2012-13 fiscal year, mainly due to an improved performance in construction, manufacturing and financial services.

Construction grew by 18.9 per cent, manufacturing at 9.1 per cent while financial and insurance services rose by 8.3 per cent. The economy is expected to achieve a six per cent growth in 2014-15, according to Kenya's National Treasury. In mid-2014, the Kenyan economy was rebased to indicate that the country's GDP reached US$50bn compared to the earlier US$44.1bn.

The rebasing has placed the country in the middle income category – mainly due to inclusion of growth data in sectors previously not captured.

"Growth in mobile money transfer, equity deals, real estate and discovery of oil and their effects on the economy are now being included in calculating national wealth," noted Steve Wafula, financial analyst with Hidalgo Investment Group in Nairobi.

Seeking new growth in tough times

The government is keen to invest in construction, agriculture and information technology. In 2014-15, Henry Rotich, cabinet secretary of the Treasury announced a budget of US$21bn to spur the economy. Terrorist attacks by the Somalia-based Al Shabbab Group along Kenya's coast and northeastern regions has led to cancellation of bookings in beach hotels along the Indian Ocean. "It has been a tough year for investors, employees and suppliers in the tourism sector," said Agatha Juma, CEO of KTF.

Tourist numbers are expected to drop in the first half of 2015, according to KTF.

The Kenyan government is focusing on infrastructure development such as ports, buildings, roads and railways to boost the economy.

Revenue in agriculture, investment in infrastructure

Agriculture registered a low 2.9 per cent growth. According to the Kenyan Economic Survey 2014, the downturn in the sector was mainly due to reduced global commodity prices and poor rainfall. For instance, the prices of tea – an important foreign export earner – fell to a six-year low in 2014, affecting the morale of tea farmers countrywide as they reduced annual bonuses. Tea contributes four per cent of Kenya's gross domestic product (GDP) and accounts for 26 per cent of the foreign exchange earnings. "This year's annual tea bonus payment at US$0.37 per kilo has been comparatively lower than US$0.49 in the previous year.," observed Monica Matu, a farmer in Nyeri County.

In order to overcome the drop in earnings (from tourism and agriculture), the government is spending heavily on infrastructure. In the 2013-14 financial year, US$1.34bn will be spent on the construction, maintenance and improvement of roads. Another US$500mn will be used to expand power generation countrywide. At least US$226mn was allocated to the Standard Gauge Railway from Mombasa to Nairobi, expected to cost US$4bn. Other projects include the upgrading of airports, the ongoing Lamu Port South Sudan Ethiopia Transport (Lapsset) project and an oil pipeline to connect the Turkana oil fields to Lamu Port.

Banking on new money and mobile initiatives

Another area where growth has been anticipated is mobile money transfer and data services. Data from the Central Bank of Kenya (CBK) indicates that mobile money transactions reached US$24bn in 2013, up from US$16.5bn in 2012. Mobile phone transactions in Kenya exceeded US$20bn in the first 11 months of 2013, which is higher than the country's budget this financial year. Mobile money grew by 23.7 per cent from US$16.5bn transacted in the same period in 2012. The number of Internet users in the country reached 19.6mn, according to the Communications Authority of Kenya (CAK). Buoyed by the rolling out of three undersea cables Seacom, Teams and Essay, Internet connectivity has considerably improved over the last decade. Increased access to smartphones and heavy investment in 3G technology have also pushed the data business and revenues. By the end of 2013, there were 4.3mn smartphones in a country where 30mn are connected to mobile telephony.

While budget financing has increasingly been a constraint in the past for Kenya, the upcoming fiscal year will be different with the successful raising of US$2bn by the government through a Eurobond issue.

"Access to international capital markets will help reduce our domestic borrowing. This will leave greater room for private sector borrowing and give allow banks to give favourable loan terms to consumers," said President Uhuru Kenyatta. Part of the money raised through the bond will be used in infrastructure developments such as Lamu Port, the US$3bn Galana-Kulalu irrigation project and the geothermal power project development in the Rift Valley. ■

Mwangi Mumero

Ideal tool for mining

Komatsu and equipment firm Panafrican discuss the utility and efficiency of the PC4000 for a vast range of mining operations in Africa

The Panafrican Group is the authorised distributor of Komatsu and a recognised leader in providing equipment and after-sales support solutions in Kenya, Tanzania Ghana, Nigeria, and Sierra Leone. Combined with the Wirtgen Group (including Uganda), they offer one of the largest product line-ups in support of large scale, light and alluvial mining. The combination of Komatsu's market leader PC4000, with Panafrican's quality service and support, provides an ideal solution for customers in Africa.

The PC4000 has been widely appreciated for executing mining operations with ease , while maintaining efficiency, safety and costs.

Customer service with quality performance

Peter Buhles, vice-president, market sales and service of Komatsu Mining Germany, said, "We believe the PC4000 is the most innovative and advanced machine in the 400 ton hydraulic excavator class. Komatsu constantly challenges itself to develop leading machinery for mining and construction. Komatsu's engineers working in development centres in Japan and Germany are dedicated to continuously improving the machines' performance, cost-per-ton ratio and safety. This is supported by after-sales service."

Scott McCaw, group managing director of the Panafrican Equipment Group, added, "We have been supporting the PC4000 at the Buzwagi mine site in Tanzania for over six years on a MARC contract and agree that the capability of the PC4000, paired with the HD1500, has provided a quality solution to customers, in terms of availability, material movement and cost per ton. Combining the PC4000 with the HD1500, along with Panafrican's after-sales maintenance and support, and working closely with our customers on improvements, has afforded strong load and haul performance during very difficult gold markets."

In today's tough environment of low and unstable commodity prices, companies are driven to optimise their businesses working with the OEM and their local support and service provider. Komatsu and Panafrican are working with customers on increasing production and lowering costs.

Buhles has described some of PC4000's new features to meet a challenging environment. The state-of-the-art steel structure, outstanding power control as well as high digging and break-out forces allow it to outperform the competition in any environment and application. Equipped with specially designed kits for hard rock and hot temperatures, it is ideally suited to the most challenging mining operations in Africa.

Using a "lowest cost-per-ton approach", the electrical system has been revised by reducing the number of relays and circuit breakers by up to 50 per cent. The choice of technology used in the PC4000 has been driven for further reduction in downtime and increased availability, while not neglecting quality and serviceability. The new PC4000 has additional improvements such as hose routing for reduced wear and longer life leading to lower cost and improved uptime.

With the latest PC4000 model, a new generation of KomtraxPlus – Komatsu's remote condition and health monitoring system – was launched. New features as well as additional data storage allows instant monitoring of the machine's condition and performance via a Wifi antenna and Komatsu's ORBCOM system. The data is directly transferred to management allowing them to better schedule maintenance and operation. The remote diagnostic functionality can be integrated into additional tools such as Modular Mining's MineCare System, for long-term analysis.

Developing key support:

Safety is critically examined by Komatsu, as the company clinically evaluates risks involved with operating, maintaining and servicing machines. Some of the latest safety improvements include brighter LED lighting for heightened energy efficiency. In addition, impact-resistant glass is standard to protect operators from falling objects and flyrock. McCaw added that Panafrican is also responding in remote monitoring, maintenance planning and related tools, condition monitoring, enhanced training, site reviews and evaluation to reduce costs while improving performance.

Brad Gordon, CEO of Acacia, commented on the Buzwagi operation stating "We have found that the PC4000 and the HD1500, combined with Komatsu and Panafrican support, have met our performance expectations. During these difficult gold markets, we have found Panafrican and Komatsu to be supportive and creative partners in helping us to reach our cost reduction targets without sacrificing production availability."

Rethinking the right to responsible banking

Why governments must ensure the financial security and safety of citizens as a matter of public interest

The financial crisis during 2008 and 2009, and its devastating effects on the socio-economic conditions of many people have made bankers the least trusted of all trades in Europe and North America. Statistics also show that sometimes unjustified salaries and bonuses are contributory factors to banking's image problem. This lack of trust and public confidence in the entire banking system is summed up by a UK banking regulator: "They [the banks] had a culture of gaming - and of gaming us."

The best description of this state of affairs was provided by Mervyn King, former Bank of England governor: "I find it depressing that people who earn so much seem to think that it's even more exciting to adjust the timing of it to get the benefit of the lower tax rate...knowing this must have an impact on the rest of society, when even now it is the rest of society that is suffering most from the consequences of the financial crisis."

However, the other side of the story of a crisis of trust and public confidence, which is less understood, discussed or addressed, is that for much longer, failures by these banks and their home governments have caused and continue to contribute to untold damage to the economies of some of the poorest countries in the world, especially in Africa.

The consequences of corruption

Every year, an estimated US$148bn is siphoned off annually from African states and stashed in developed economies, according to Transparency International, a global non-profit group that tracks corruption. This figure may not be an exaggeration when it is considered that in Nigeria alone, over US$400bn is estimated to have been lost to high-level official corruption since independence in 1960.

Corruption and money laundering can have devastating consequences for national economies, democratic institutions, the rule of law, and enjoyment of human rights especially for a region like Africa. Indeed, the twin problems of corruption and money laundering, and their 'offspring' - poverty - have more in common than one might expect at the outset. This link is best captured by the second and third preambular paragraphs of the United Nations Convention against Corruption, a treaty that has received almost universal acceptance.

Because it 'takes two to tango', high-level official corruption depends on collusion between corrupt leaders, their families, friends, and other politically exposed persons (PEPs) (discussed at length by Dr Radha Ivory in her new book: 'Corruption, Asset Recovery, and the Protection of Property in Public International Law: The Human Rights of Bad Guys'), and banks that frequently provide safe havens for the funds. And the bad guys' accounts' details with these banks are often shrouded in secrecy. The problem of safe haven jurisdictions is further exacerbated by the push for profits derived mostly from corrupt money from developing regions like Africa. This profit incentive also provides an explanation for the reluctance of many financial institutions to check, limit, or stop the laundering by high ranking corrupt public officials, of embezzled public funds.

This practice has become endemic and has in fact gone on for many years but rarely is any meaningful or consistent action taken by the international community or governments that supposedly regulate the banks. As it is often the case, the Western press and politicians are quick to denounce African corrupt leaders for causing so much suffering for their people while avoiding the bigger picture: the complicity and culpability of banks and financial institutions within their own borders.

It is beyond doubt that African women, men and children are paying the price in terms of schools not being built, environmental damage, bridges not fixed to standard and hospitals unable to offer necessary medicines. Yet, the banks that accept, keep and profit from corrupt funds are rarely investigated or held to account. Rather than facing scrutiny and sanctions for failing to observe the most basic anti-corruption and anti-money laundering standards (such as identifying and scrutinising the accounts of corrupt officials), and consequently, for their roles in fuelling corruption, poverty and associated human rights violations in Africa, these banks are often pumped up with state subsidies.

Being a good banker

Good, responsible banking involves always knowing your customer but many banks claim to be unable to do this because of a flimsy excuse of 'understaffing'. The simple fact of the matter is that these banks are aiding and abetting those who have turned national patrimony into a 'cash-cow'. Recovery of any stolen public money or the profit accruing from it is difficult, time-consuming and very expensive. But it is all too easy to focus on corrupt African leaders gleefully behaving badly. To be sure, 'African leaders' share primary responsibility for the appropriation of the commonwealth for personal gain, and it's certainly necessary to have prosecutions and wide-ranging inquiries and restitution for their citizens who are the ultimate victims of corruption.

A strong and effective leadership and clear and genuine commitment to achieve full respect for internationally recognised human rights - not just civil and political rights - but also economic and social rights of African women, men and children, is required to make African states more transparent, inclusive and accountable. But the persistent failure of many international banks to stop African public stolen funds from being deposited with them in the first place

can no longer be ignored or allowed to go unaddressed or unremedied. So far, the responses by banks and their home governments to the human rights and other problems caused by facilitating flight of ill-gotten funds from Africa and elsewhere and then keeping and profiting from the funds have proved far from satisfactory; that has to change.

An important part of the solution is to change international banking to make it difficult for senior states to find safe havens for their ill-gotten wealth.

Banking institutions and individual operators must embrace professionalism and integrity when they come in contact with corrupt officials from developing countries. Banking deserves to be treated as a profession, rather than solely a series of trading and profit-making activities. Further, any ongoing plans by banks and their home governments to fight corruption and bad governance in the financial sector and to avoid another banking crisis must bear in mind these important points. The idea of secrecy first, public interest second can't be good for business in the long run.

There is nothing intrinsically wrong for banks to also operate as public benefit companies, especially given their complicity in corruption, money laundering, poverty and associated human rights violations in developing countries. It is time to accept that banks have social responsibility and wider public interest obligations to discourage high level official corruption in Africa. We need credit-creating banks - but acting fairly, justly, and for the greatest happiness of the greatest number.

The argument can be made that because of their access to corrupt officials' transactions, banks and financial institutions are well placed to play a key watchdog role to detect and prevent money laundering by this category of clients. Thus, in relation to stolen public funds at least, this duty of due diligence would at the minimum demand complete fidelity to the public trust. If this is so, victims of corruption and public interest groups can rely on human rights law to ensure compliance with the duties of due diligence and know your customers rules, thereby enhancing the effectiveness of the rules in practice. This public trust function would be undermined, for example, if financial institutions were to unreasonably withhold information on transactions concerning corrupt officials and their families and friends from the public upon request. Allowing victims of human rights violations caused by corruption to access their records can act as a powerful dissuasive tool, as it can help to discourage potential corrupt senior state officials from engaging in corruption (and money laundering) in the first instance, knowing full well that the chances of being found out within the financial system are high.

Practice in the public interest

While financial institutions have ethical duties in relation to their clients, such duties should not be allowed to trump the overwhelming public interest considerations involved in detecting and preventing public funds derived from corruption (an illegal act) from being subject of money laundering. But it might be necessary to shield financial institutions from the risk of litigation or liability for disclosure of information on the ground of necessity and public interest if they are to be encouraged to play a more proactive role in detecting and preventing money laundering.

The proposed enhanced public interest role for financial institutions may well help to reverse the perception about these institutions as being part of the money laundering conundrum (often considered to be carrying out the instructions of corrupt officials) and thus contribute to changing public attitudes to them, which in the long term may create an ethical (and profitable) business environment for the institutions.

Financial institutions can recoup any potential fall in the profit margin that may result in the short term, by for instance establishing new areas of work and consultancy services in the field of anti-money laundering. But the open question remains whether the proposals highlighted here have got the political vehicle to get traction with the public to generate the necessary pressure, and whether the banks and their home governments are ready to 'walk the talk' and fulfil their inherent commitments to global distributive justice. ■

Kolawole Olaniyan, PhD, legal adviser at Amnesty International, and author of Corruption and Human Rights Law in Africa

Okere encourages entrepreneurs to succeed


Austin Okere speaking on at the Annual Fidelity SMEs conference in Lagos

Computer Warehouse Group founder and CEO Austin Okere has charged small and medium business owners to achieve their business visions and to use technology to improve sales. He spoke at a panel discussion on 'Leveraging Technology for SME Growth' at the maiden edition of the Annual Fidelity SMEs conference held recently in Lagos, which featured outstanding entrepreneurs in Nigeria's ICT sector - including Chief Leo Stan Ekeh, the founder of Zinox Technologies; Nicolas Martin, CEO and co- founder of Jumia; Charles Anudu, CEO of SWIFT Networks; Bankole Cardoso, founder of Easy Taxi; Opeyemi Awoyemi, co-founder of Jobberman; and Funke Opeke, CEO of Main One.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Commanding the core system functions

Machinery functions can be remotely managed without having to invest heavily, thanks to new control and telemetry devices

The innovative new i-Commander control and telemetry device

South African industry is showing the way to control industrial machinery effectively without the need for investment in large, capital-intensive programmable logic controller (PLC) technology, One key, innovative solution is offered by the i-Commander control and telemetry device, locally manufactured in South Africa and distributed by Enviropower.

The parameters to address problems

According to Enviropower's chief operating officer, Stewart Blanckensee, the i-Commander is a smaller, more affordable solution to a traditional PLC, which allows the user to control the required equipment or functions from a cell phone. He explained, "It is the ideal solution for smaller systems that may not be covered by a PLC, but have certain aspects that need to be monitored, such as temperature, pressure and oil analysis."

The i-Commander allows the user to set the parameters that it functions within, setting off an alarm if the system operates outside of those parameters. Blanckensee noted, "Through 24/7 control of a system through i-Commander, users will be aware of issues within the system before they become bigger problems. This provides the user with tremendous safety and efficiency benefits."

According to Blanckensee, the i-Commander is not designed for any specific application, and can be used in a variety of industries, including mining, agriculture and power generation. He explained, "It is best-suited to smaller operations, however, if an operation expands and the user requires a larger system, it is possible to add multiple i-Commanders to the system. In addition, the i-Commander sends alerts directly to any number of cellular phones and not just to a controller in an operations centre."

A unique aspect of the i-Commander is its cable theft monitor feature. Blanckensee observes that cable theft is a major challenge for farmers and other industries, as it is costly to replace the stolen cable. Blanckensee said, "The cable theft monitor function allows the user to constantly monitor their cabling, setting off an alarm if any predetermined parameters are breached."

Secure command and control

The i-Commander uses a SIM card and can be run off of multiple cellular networks. It allows the user to enter numerous contact numbers for the most effective communication. For example, if there is a power failure where the device is being used, the i-Commander will send selected users a message indicating the time and date of the initial incident, and when the power is restored again.

Predetermined command features also enable more effective communication between the user and the device. Blanckensee said, "By sending the word 'status' to the i-Commander, the user will be instructing the device to check all aspects of the system and send a report. It is also possible to enable or disable certain tasks by sending a message to the device. The user can also set a pattern of events to take place one after the other, when certain conditions are met."

In addition, users are able to log the performance of the equipment over an extended period, allowing them to determine if there is a problem in the system, or identify where maintenance needs to be carried out. Blanckensee said, "Through proper management of the system with the i-Commander, there can be a drastic increase in productivity."

Initial set-up of the i-Commander is quick and simple. As part of its value-added service, Enviropower pre-sets the device for its clients, thereby ensuring that the user simply has to select the parameters that the i-Commander is required to operate within. ■

DuPont showcased new solutions in Nairobi

Packed to perfection

DuPont's experts discuss the various technological innovations that shape the packaging industry in Africa

DuPont is a prominent science and innovation company with interests around the globe and across the continent, that is guided by its poignant slogan, 'the Miracle of Science. It hosted its 3rd DuPont Packaging Day Seminar in Africa in Kenya at the Sankara Hotel, Nairobi on November 11th, 2014. This followed the success of the first and second packaging seminars in Lagos, Nigeria, and in South Africa, the other two countries where DuPont is most active (in addition to Kenya) in Sub-Saharan Africa (SSA).

Under the theme 'Flexible Packaging Trends in Africa', this event attracted about 80 delegates – mainly local partners but also others from different parts of Africa. With discussions and presentations coordinated by Lukas Bartek, PhD, DuPont's business director for Eastern & Central Europe, Turkey, Middle East, Africa, the seminar provided interestingly dramatic facts and figures in some highly technical presentations that highlighted the import of having and collaboratively providing the right and sustainable packaging and packaging – printing solutions. "This event is essentially meant to trigger dialogue and deliberations aimed at finding the best packaging and related solutions. We are here not to bring 'fish' but aim to introduce dialogue and collaborations in search for the best packaging methods for our partners. We are encouraging close collaborations for packaging and related concerns especially for fresh products," explained Lukas to this writer in a side interview.

Marked by different, interesting topics in various presentations including 'A Welcome to Collaboration' by Bjoern Meth – DuPont president South Africa; 'One DuPont Food – Welcome to Global Collaboratory' by Mr Bartek and 'DuPont Packaging Solutions for Africa' by Mr Heiko Schenck, DuPont's packaging director, Eastern & Central Europe, Middle East, Africa (ECEMEA), the event was held in the background of some pertinent yet disturbing global food and food production facts.

Other presentations included 'Machinery Trends for Sustainable Film Production' by Alfred Menhart – Reifenhauser-Kiefel Area sales director; 'Films in Flexible Packaging – an African Perspective' by Simiyu Wamalwa, Competitive Options director, Kenya; 'DuPont Cyrel the Quality Leader in African Packaging Printing by Bjoern; and 'How DuPont Cyrel improves the Quality in Packaging Printing' by Richard Okwema, sales manager, Sanjac Packaging Ltd, Kenya.

Delegates heard that the world population is expected to reach nine billion in 2050; an eventuality that will raise demand for more food and food produce packaging needs. Yet, one-third of all world food is wasted translating into a loss equivalent to US$680bn and US$310bn in industrialised and developing countries respectively. Industrialised countries waste 222mn tonnes of food, which is equivalent to the food produced in the whole of Sub-Saharan Africa.

Food loss and waste occurs during production due poor and unreliable climatic conditions, poor and inadequate storage and challenges of compliance regulations. Post-harvest technical limitations lead to inefficient processing and consequent losses. During industrial processing including cleaning, grinding, packing/packaging and marketing, transportation and the required compliance, wastage also occurs. Further wastage and loss is observed during sales and distribution following wrong ordering or forecasting, and at homes and restaurants due to serving of overgenerous portions or poor food preservation.

Delegates learnt that DuPont has moved from its traditional approach as a materials supplier, convertor, and brand owner who engaged in limited collaborations and innovations producing low value and high cost products to its current integrated approach in production marked by more innovation, increased speed to market and higher value and low cost products.

Essentially, DuPont is committed to listening to its clientele and customers, and reducing food and packaging waste in a world where one-third of all food produced (1.3bn tonnes) go to waste right from the farm to the plate on the table leading to massive world hunger and consequent massive production of green house gases (GHGs) emission.

DuPont's packaging strategy key pillars were identified as product innovation, technology leadership and collaboration with all partners. From the 'DuPont's Packaging Solutions for Kenya' expose, delegates heard that DuPont's packaging and industrial polymers are focused on collaboration as a concept, food waste reduction, targeted, orientated and less weight for same performance packaging, and peel and easy opening packaging for dairy products and especially milk. To reduce food wastage, other packaging solutions are offered for dry foods and candies and wet foods including meats.

DuPont's dry food packaging solutions also preserve food from contamination after being opened for the first time, thanks to its user friendly resealable pouches. Notably, innovation became pertinent here when the very convenient and effective resealable system that was fitted to rigid packaging proved unsuitable for flexible pouches.

Why is the right and appropriate packaging for meat critical for instance? Every kg of wasted meat produces five kgs of GHGs, while between six and 15 per cent of meat weight is lost if proper packaging is not provided during transportation. Consumers are also keen to see their meat in neat packages that help in preservation and improving shelf life while at the same time reducing the incidence of smell.

For meat packaging, DuPont has developed the SURLYN sealant solution; this adheres to meat and fat, has secondary seal, prevents

spill and smell during shelf life while its ZN Ions slow down bacteria growth. For this, DuPont is collaborating with all its partners.

The company's Surlyn raises packaging performance, reduces total packaging cost and is sustainable. Its ionomer resin allows brand owners and packaging suppliers to increase customer loyalty by avoiding leaky packages and reducing failure during shipping and handling. It makes strong reliable seals owing to its broad seal temperature range among many other qualities. Surlyn is also applied to dry foods paper based sachets and liquid soap sachets for personal care.

Moreover, new trends in meat packaging have included a shift from Modified Atmosphere Packaging (MAP) to vacuum packs; replacement of cling films and trays; the need to stop smell and its causative factors and having packaging that appeals to customers; need to reduce packaging weight, replacement of bone guards, vacuum skin packaging (VSP) which is crystal clear with forming and drawing and high puncture resistance to sharp edges and bone protrusion, and smaller lighter packages among other considerations. Some package weights for instance have reduced to four grams from 14g promoting easier supply chains and better presentation such as done with Multivac.

To produce high performance, 9-layer barrier lidding film for mono-appet trays, DuPont has partnered with Reifenhauser-Kiefel. The new range of films provide improved seals (even through contamination) and offer substantial cost reduction and higher gloss and clarity and are used together with DuPont's new Appeel lidding resin. Other benefits with this technology include better transparency of the tray due to elimination of the PE sealant layer, lower overall packaging material cost, recycleability of the monomaterial tray and versatility to have lock-seal or easy-open lidding depending on the structural design.

DuPont has also partnered with Reifenhauser to create a new range of thermoformable films for vacuum packaging applications that have enabled substantial cost reduction and improved shelf appeal courtesy of Reifenhauser sophisticated 9-layer blown film technology and super-strong DuPont Surlyn sealant resin. The accruing benefits include downgauging opportunities without compromising perforation resistance and barrier properties; saving on environmental fees from lighter packaging; better optical properties; superior deal performance even in the presence of contamination; reduced material cost and improved packaging efficiency among many others.

Also collaborating with Cargolux, DuPont has also developed Tyvek Air cargo covers to help protect perishables and reduce food waste during transit. The covers provide thermal protection from solar radiation and reduce the damaging effect of heat as experienced in many airports in Africa and other parts of the world.

Giving an African and, specifically, a Kenyan perspective, Wamalwa said demand for flexible packaging (including film, foil and laminate or composite paper) will continue to rise owing to Africa's rising population. The continent is expected to record its highest increases in population between now and 2050 and yet, working hard to attain food security. ■

John F N Ng'ang'a

The market for quality, skill and experience

Engine remanufacturers must be able to manage the latest generation technologies, if they are to continue to be successful

Small end bush machining at Metric Automotive Engineering's facility

Machining of a valve seat at Metric Automotive Engineering's facility

When customers look for engine remanufacturing services, they should audit the status and suitability of the remanufacturer's equipment to determine if it is capable of machining these new generation engines. According to Andrew Yorke, operations director at Metric Automotive Engineering, this is because new generation engine components require far tighter machining tolerances and advanced machining methods during the remanufacturing process.

The standards of modern designs

The benefit of quality engine parts and skilled engineering is seldom seen in the first thousand hours of a vehicle's operation. This only becomes evident later, when the engine starts to log extended machine hours. Coupled to this is the fact that modern engine designs are more complex than ever before, in the quest to achieve improved fuel efficiency and higher emission standards.

"The engines currently being installed into new vehicles are highly sophisticated, not in their major elements, but in the minor components that are so critical to performance and emissions efficiencies," Yorke said. "Although the primary elements have stayed the same, when it comes to engine rebuilding, machining tolerances and clearance tolerances have become a lot tighter.

"This necessitates far higher skill levels among remanufacturing engineers, even compared to the recent past, as well as more accurate equipment because there is a great deal less room for error."

Components and commonalities

Yorke observed that some fleet owners, plant managers and foremen are unaware that the major engine OEMs share basic engine designs and simply adjust these to suit their own requirements. He said, "It cannot be assumed that because the engines look the same, the same parts can be used. Certain engine models are being shared by up to five different OEMs. The engine block is the same, but there are small size variations in the componentry, with subtle variations even within a single OEM's range of engines."

Sourcing skills

Engineering and artisan machining skill levels are also critical. When remanufacturers outsource certain elements of the process because they lack the necessary equipment or skills in-house, it can affect quality and turnaround time, as well as adding to the overall cost and even impact the warranty terms.

Yorke observed, "Remanufacturers must have access to the correct engine parts," Yorke adds. This means that such companies must have critical information such as the engine serial number, model number and VIN code on hand. Although differences in parts may not be obvious, fitting the incorrect parts will affect performance significantly.

"An engine is not just an engine anymore. Remanufacturers can no longer supply a part simply because of its similarity to the original part. There are critical differences, and if you do not work within these parameters, the engine will never run as it is intended to. There are no more quick fixes in such a scenario because once the vehicle is back on the road, it will be extremely difficult to identify why it is not running optimally." ■

Porsche's global gains

In 2014, Porsche AG delivered 189,850 new cars to customers all over the world – an increase of 17 per cent over the previous year. In December 2014, the German sports car manufacturer also broke the 20,000 unit barrier (+39 per cent compared to the same month the previous year) by delivering 20,644 cars for the first time in one month. The new Cayenne generation, in particular, experienced strong demand in China in the reporting month: over 6,400 units mean that deliveries almost doubled compared to December 2013.

"For the fourth record year in a row there are very specific reasons: fascinating products and highly motivated employees," said Bernhard Maier, member of the executive board sales and marketing of Dr Ing hcF Porsche AG. "On top of that, our brand experienced an additional upswing in 2014 as a result of the successful launch of the Macan. Worldwide, seventy-five per cent of Macan customers were first-time buyers of a Porsche car."

In 2014, Porsche sold more cars in all regions and on all markets. The United States ranked number one with over 47,000 new cars delivered. The Chinese market recorded the largest growth with an increase of 25 per cent to exactly 46,931 units delivered. In Germany, almost 24,000 customers opted for a Porsche model, more than ever before. In Asia Pacific, Africa and the Middle East, Porsche sold 73,233 vehicles in 2014, up 19 per cent on the previous year's total of 61,534 vehicles sold.

There has been strong demand for the new Cayenne

The Porsche Macan, a compact sport utility vehicle (SUV), was especially popular in the world in 2014 and the fifth model series sold about 45,000 units in the first year of its launch. The Stuttgart sports car manufacturer delivered 13 per cent more Panamera sports saloons than in the previous year. With over 30,000 units of the 911 sold, the sports car icon also ranks above the figures for the previous year.

New energy for South Africa's economy

Why localisation is regarded as essential in making nuclear power a success in the country

As nuclear power generation looks set to become an increasingly-prominent option for renewable energy production in South Africa, it is vital that local manufacturing companies are included in the large-scale and costly infrastructure rollout to ensure long-term efficiency and sustainability.

International manufacturing and engineering company DCD Group is a driving force behind the promotion of raising local content thresholds in local energy sector. DCD managing director Rob King believes that the concept of appointing foreign companies to build local nuclear power stations exclusively is illogical and a lost opportunity to boost the local manufacturing sector. He explained, "There is certainly capacity in the South African industry, and moving this capability abroad does not make sense. By taking a little bit of risk, we can nurture and develop this industry locally, which will result in considerable and measurable positive spin-offs into other sectors too."

A study conducted by the Nuclear Industry Association of South Africa (NIASA) found that as much as 59.4 per cent of future nuclear builds could comprise local content. According to King, DCD has been working on this matter in close collaboration with NIASA, which presented the findings to the South African Parliament to help convince them to raise the local threshold on nuclear plants.

Due to the fact that South Africa is still a developing economy, King said that government is not allowing local industry sufficient time to adequately develop its nuclear capabilities. He added, "It takes time to get to the point of delivering projects of this magnitude successfully. The process starts with developing the necessary skills and commercial abilities to begin costing these projects accurately."

DCD Group is investing significantly in training resources to promote raising local content thresholds in local energy sector

Ready to build

DCD is already equipped to manufacture components outside of the nuclear island, which is the heart of the plant that houses the nuclear system that produces steam. Depending on the technology used, this can represent up to 70 per cent of the spend. King said, "It is for this reason that we are urging government to take account of these figures when selecting the vendor."

What's more, DCD is investing significantly in training resources to cope with the 'First World' standards that nuclear builds demand. It will cost in excess of US$17.4mn to develop a new facility that can cater to the exacting quality requirements for manufacturing components for the nuclear island.

The US$25.9mn, 23,000 sq m DCD Wind Towers wind tower manufacturing facility, located in the Coega Industrial Development Zone (IDZ) in the Eastern Cape, was specifically established to support the localisation of wind tower manufacturing in South Africa.

In addition to stimulating the local economy, King highlighted the fact that localisation in the wind energy sector will create new skills and sustainable employment.

"Localisation, particularly in the construction of wind farms, also creates jobs in secondary industries, thereby contributing to measurable socio-economic development," he said.

Despite early success in the wind energy sector, King admitted that it would be more of a challenge to achieve similar local content thresholds in the nuclear sector. He noted, "The vast investment needed for these builds means that South Africa will seek international participation to finance them. I suspect that this will also result in foreign contracting capability being placed ahead of local content. "From a localisation point of view, South Africa should pursue electricity generation technologies that complement the government's National Development Plan (NDP) of promoting sustainable local job creation."

Power, uninterrupted

Diesel gensets continue to play an important role in Africa's daily life with regular power cuts; therefore, it is important to maintain the sets for better service

The global demand for energy is set to grow around 60 per cent over the next 15 years to 2030, according International Energy Agency (IEA). Despite the fact that access to modern fuels and energy supply in developing countries has improved considerably in recent years there are still around two billion people in under developed and remote regions across the globe who are effectively 'off-grid' with no access to modern energy supplies and that number is not decreasing but increasing by 30mn a year. As a result, the reliance on diesel generators to support populations and industries and businesses in many regions, including Africa, is not going to diminish anytime soon.

Navigant Research forecasts that diesel genset installations will reach 82GW per year by 2018, representing US$198bn in cumulative revenue between 2013 and 2018 and that worldwide revenues from the sale of diesel gensets will reach US$41.2bn by the end of that period.

In some of the least developed nations in Africa crop residues and dung are still major sources of fuel, with wood and charcoal continuing to be the primary fuel for cooking and heating in most developing markets. And while the IEA projects that nearly 1.5bn people over the next 25 years will still be without access to grid power, primary energy use during that time is set to increase by four per cent year-on-year. The challenge is obvious.

Diesel genset to the rescue

In developing countries the term 'off-grid' typically and geographically refers to remote rural regions and isolated communities or remote enterprise locations where supplying electrical power from the main national grid is simply not economically viable. It takes complex infrastructure such as sub-stations and transmission and distribution lines to carry grid power to any location and such undertakings over vast distances and difficult terrain would make any final cost for that electricity to the end user prohibitive if the service provider is to make any profit from such an undertaking.

As a result, diesel generators remain an ideal solution for domestic and high-energy requirements in rural areas. They are easy-to-install and can be used on their own or as part of hybrid systems in conjunction with other alternative sources of power, such as wind or solar. The advantage of hybrid systems is that they can switch from one energy source to the other depending on which is cheaper at a particular time of day or operating environment. As with any generator set-up, however, it is important in a combined-system scenario for skilled personnel to be on hand to maintain and ensure the uninterrupted smooth operation of the generators and alternative sources of power.

In agriculture across Africa, diesel generators are an established source of power in a sector that involves 250mn people actively producing food stuffs for 70 per cent of the population. Almost 80 per cent of those workers are involved in activities involving livestock and its meat, milk and skin by-products, all of which rely heavily on power if they are ever to reach their finished, ready-for-sale product state. Lighting, pasteurisation, milk churning, irrigation pumping, cottage industries and rural processing facilities, all require power and diesel generators play an important part. Horticulture too is a massive user of power and is a sector of agriculture growing steadily to produce vegetables, cotton, flower, cut flowers and more. Lighting and irrigation of acres and acres of indoor growing areas relies heavily on the diesel generator, with literally millions of small diesel engines alone required to meet just the irrigation pumping needs of Africa.

The growing IT and data centre industries in Africa where back-up power is crucial in centres could risk losing data if an effective diesel genset back-up is not available

Other diesel genset applications in Africa include the growing IT and data centre industries where back-up power is crucial in centres like Lagos which suffer frequent power outages and brownouts, which could risk losing data if an effective diesel genset back-up is not available. In addition, and offering a solution to a range of remote enterprise scenarios, Barge-Mounted Diesel Generators (BMDs), with capacity ranges from 5MW to 50MW can be coupled together on a single off-shore floating barge and be transported to where an application, such as mining or off-shore drilling, might need up to 100MW of power.

Keeping the engines running

Ongoing operational costs of using diesel generators for local power production needs can often be major obstacles to Africa's ongoing progress, particularly on a continent where 70 per cent of the population are poor. Although costs for capital diesel gensets can range from several hundreds of dollars to tens of thousands, smaller generators still offer the most cost-effective and affordable primary or back-up sources of power per kilowatt compared to the initial high capital outlays required by alternative energy sources such as wind or solar. But once you have a genset, it needs looking after if you are to get the best out of it and keep it running for as long as possible.

Compared to renewable systems diesel comes out pretty much on par in terms of O&M, but the quality of the generator and how well it is maintained then impacts the ongoing cost of fuel, as poor maintenance can result in higher consumption and associated logistics costs delivering more fuel to what can be very remote locations. In remote and rural off-grid areas, although diesel still provides the mainstay solution for agricultural and remote enterprise generator requirements in Africa ahead of renewable solutions, the logistics and fuel price – including manpower to deliver fuel and maintain the systems – will determine how viable their use is for the community or agricultural business using them. Of course, no amount of proper maintenance can account for fluctuations in fuel prices.

One key factor in the proper maintenance of diesels, which is often overlooked, is the proper maintenance of backup generators. Many a scenario has played out when a primary generator has failed and a back-up unit, covered by an old canvas, is tried for the first time in years. It, too, fails and this highlights the need for all back-up generators to be run once a month at the very least, which is especially important if they have a prime role to deliver stand-by power. Regular running of back-up and stand-by solutions will ensure that processing plants, irrigation pumps, timber yards, remote medical clinics, remote mining locations (where oxygen pumping and ventilation can be critical to life below the surface), do not stand idle due to an avoidable power emergency.

Africa's horticulture sector is growing and is now at the forefront. To continue this trend, flower producers in Kenya, vegetable producers in Ghana and other perishable produce businesses shipping their goods to markets such as Europe, cannot afford power set-backs

Africa's horticulture sector is growing and is now at the forefront. To continue this trend, flower producers in Kenya, vegetable producers in Ghana and other perishable produce businesses shipping their goods to markets such as Europe, cannot afford power set-backs. And when generators typically require little more routine maintenance than oil,

fuel, air and oil filters to ensure their long-life, it makes no sense for any business relying on them not to have a solid O&M regime in place. That said, in regions where fluctuations in climate see temperatures rising and falling on a regular basis, from hot and humid to cold and damp, equipping diesel gensets with a water-fuel separation filter is a sensible step to avoid 'advanced ignition' — an accelerated fuel ignition due to water contamination of the fuel itself — which can damage the engine leading to failure and shorter the lifespan of the unit overall.

Expert thoughts and actions

The importance of maintaining a diesel generator cannot be understated. Jack Ward, MD of power specialist Powermode said that diesel generators require high quality, frequent maintenance if the need for emergency repairs has to be minimised. In such emergencies, stand-by power systems can be relied on to fill the gap. He said that investment in a stand-by power solution is 'only as good as the service it receives' and that if a user/consumer actually budgets a little less on the initial capex of the solution and more on its ongoing maintenance they will be rewarded with 'significantly more reliability and a lower, long-term cost of ownership.'

With such diesel systems and uninterruptible power supply (UPS) systems used as back-up generators they often operate in challenging environments, where not only surrounding environmental conditions such as humidity and high temperatures have an impact, but where high voltages, unstable power ranges, spikes surges and transient voltages also play havoc. Ward said that intermittent or periodic operation will cause lubricant and fuel stagnation and to ensure optimum performance this can be countered if the engines are run regularly, for instance, weekly for 20 to 30 minutes, keeping parts well lubricated, fluid lines unclogged and preventing harmful oxidation of electrical contacts. From both operational and safety perspectives, servicing and maintenance should be carried out by qualified technical personnel with an outsourced specialist diesel service company. If diesel generation is part of your solution, proper maintenance is, too. ■

> "Smaller generators still offer the most cost-effective and affordable back-up sources of power per kilowatt compared to the initial high capital outlays required by alternative energy sources such as wind or solar

Tim Guest

Proper checks ensure optimal performance

Regular revisions of generating sets will ease performance issues, power solutions company Inmesol suggests

To ensure the generator sets operating correctly and to prolong their service life, it is essential to carry out adequate maintenance that is specific to each of the systems in the equipment — mechanical motor, alternator, chassis, fuel tank, battery and control panel.

Maintenance should be performed on a regular basis and requires training, as well as specific tools and knowledge. Consequently, it should be done by qualified personnel. Likewise, the type of motor in each generator set – brand, model, function, power and whether it uses petrol or diesel and the environmental conditions determine the specific needs and maintenance protocols.

Check list

For all the generator sets – except the emergency sets, which require special maintenance – there are three types of checks namely sporadic, regular and extraordinary.

- **Sporadic revisions**
  This is a basic check, which is very simple to perform and can be done by the generator set user. It consists of starting up the equipment in accordance with the instructions provided by the manufacturer. It should be carried out on a regular basis and takes a few minutes.

- **Regular and extraordinary revisions**
  The regular revisions should be carried out by suitably trained technicians (at Inmesol we facilitate this training to our clients) and the extraordinary maintenance is performed exclusively by qualified personnel.

- **Maintenance for Emergency Equipment**
  Given that the function of this type of generator set is to operate exclusively when there is a failure in the electricity supply network, it is important to change oil filter, diesel filter, diesel prefilter, at least once a year, if there is one.

Motor Maintenance

Just like vehicle engines, the motors in generator sets have combustion chambers, pistons and different auxiliary systems: the cooling system (radiators and ventilators), the filtration system (air, oil and fuel), and the electrical system (responsible for turning the equipment on and off).

In the filtration system, the air, oil and fuel filters as well as the fuel must be replaced after a determined number of service hours. This is normally required once a year, but the timeframe varies due to many factors. For example, in the case of the air filters, the replacement frequency depends on the concentration of dust particles in the

Maintenance should be performed on a regular basis and requires training

environment surrounding the generator set. It is also important to remember that the motor must be cold before carrying out maintenance on the fuel filter to prevent the risk of fire.

For the electric system, the battery power must be checked regularly and the electrolyte level must be tuned, adding distilled water to compensate for inevitable evaporation. To verify the density of the acid solution, the technicians use a densimeter.

Inmesol manages a maintenance kit for clients, which offers guarantee as well as a large stock of replacement parts.

Maintenance of Other Components

In addition to all the elements described above, a generator set contains a series of components, which also require preventative maintenance.

Gas exhausts: check silencer and the exhaust flow.

Moving parts: check ventilators, belts and their respective tensors. The alternators have roller bearings, which do not usually require maintenance, but they must be replaced after around 25,000 service hours.

Windings: it is advisable to measure the ohmic resistance of the casing, which protects the equipment from time to time, to check whether there is adequate earthing.

Control panel: revision of the fuses and cleaning of the contacts as necessary.

Each manufacturer details the particularities of their models and the corresponding specific recommendations in a Service and maintenance manual. ■

Question every energy assumption

Engen, the sub-Saharan Africa energy company with roots in South Africa, has enjoyed sustained success on the continent, in many ways informed by the notion that one can take nothing for granted when venturing north

Engen's marketing in Africa is in French, Portuguese and English to reach local markets

It feels unusual to think of Africa as one of the hottest current investment tickets. Yet as the continent grows progressively wealthier (as illustrated by the table below), perceptions around business and investment are changing fast.

TABLE: Real GDP Growth

	2011	2012	2013	2014	2015	2016	2017
Developed world	1.6	1.4	1.3	1.7	2.4	2.5	2.5
Sub-Saharan Africa	4.6	4.1	5.2	5.1	5.8	6.3	5.9

Source: World Bank

With a 'young' population of 920mn in 2014, growing at 2.6 per cent per annum, it is easy to see why the relatively untapped potential spending power of sub-Saharan Africa has grabbed the attention of serious investors. Africa furthermore has abundant natural resources, while significant recent liquefied natural gas and oil finds, are expected to be a game changer for the region over the next 10 to 20 years.

Handle with care

But the continent is not for the faint-hearted. A myriad of differing regulatory frameworks, corruption, uneven application of the law and political uncertainty all contribute to an ever-changing and challenging competitive environment. Few international oil companies remain fully invested in the region - one of them is Engen.

The company has affiliates in 15 sub-Saharan African and Indian Ocean Island countries, distributor agreements in seven others, and has a grand vision of being the oil company of choice in the region.

South Africa's leading fuel company Engen is no newcomer to Africa, and it knows the pressures better than most. Out of 207 countries ranked by risk by Global Insight, three of Engen's affiliates are in the riskiest 10 per cent, said Drikus Kotze, Engen's general manager of international business.

"Only the Indian Ocean Islands (Reunion and Mauritius) and Botswana are viewed as 'moderate' risk," he said. "Affiliates in the west of Africa, south of the Sahara have terrorism and Ebola to contend with, whilst affiliates in the East also grapple with terrorism as well as Somali pirate activity, amongst others."

Success against the odds

Kotze said in the seven years since the inception of Engen's 10-year vision to be recognised as a leading player in the African downstream energy market, the company has shown good compound volume growth, through a mix of organic and selected acquisitions.

And what is even more surprising is that Engen's success comes at a time when less doughty competitors are disinvesting from the region, in search of more profitable opportunities elsewhere. "Nevertheless, we have continued to have success with a strategy of selected growth in the rapidly urbanising countries," said Kotze.

What's the secret?

Kotze said Engen has made a great success of the downstream model in southern Africa, with outright market leadership in South Africa, and sees no reason why the feat cannot be repeated further north.

"By leveraging our South African networks and market solution, we are positioning Engen as a long-term player with a vested interest and deepening roots in every host country. Our aim is to become increasingly part and parcel of the local social and economic fabric of the country's in which we operate."

He added that Engen treats every country as a unique entity with its own distinctive set of solutions. "The way in which we conduct business in each of these states is informed by their particular customs, regulations and business methodology. However, despite going into each new territory with its eyes wide open, the company continues to encounter unpredictability. "The only universal lesson that can be crystallised from all this is that all assumptions should be carefully considered and interrogated," said Kotze.

Nevertheless, in over 15 years in Africa outside the SADC region, Engen has learnt a number of important lessons.

Ethical business principles

Key to Engen's success has been its rigorous adherence to sound corporate governance practices and world class health, safety, quality and environmental standards, said Kotze.

"We always have, and always will, conduct business in line with our code of conduct, our strong ethical principles and our business philosophy, namely that any involvement should be mutually beneficial, both to Engen and our key stakeholders."

Security of tenure

Pierr Roodt, business support manager for Engen's International Business, said security of tenure is key to Engen's success, and more often than not translates to a bankable confidence in the country's enforcement of ownership or leasing contracts.

In one incident, recalls Roodt, the company bought a competitor's operation and downstream network, only to have the seller's rights disputed. In another case, an acquired asset was located on tribal soil, and unbeknownst to Engen, tribal law superseded local law.

"We continually assess the political and general business risks in every country in which we operate by taking cognisance of aspects such as a country's socio-political profile, land ownership policies and issues, stability, economic performance and country-specific legislative requirements," he said.

Partnerships

Prior to entering a country, it is prudent to consult an in-country business partner for help with understanding the finer nuances of the culture, legal and economic fundamentals of the country. "It is further beneficial to choose product partners with a physical presence in the countries it enters, to expedite support and maintenance," commented Roodt.

Local content and ownership

In many African countries, a degree of local ownership and employment comes into play. Zimbabwe, for example, has indigenisation laws, requiring foreign companies to have a local partner with a controlling stake in the business. Rather than merely complying with legislation, Engen fully supports the benefits that localisation brings, especially in terms of giving the company a good understanding of the local operating environment and cultural nuances, and providing opportunities for the local people.

"As far as possible, Engen will appoint both locals and expats to head up its operations in support of locals laws, but also to develop international talent. As an international company it is critical to have a well-developed human resource talent pool which will consist of both locals and expats," said Roodt.

Local language

Engen's marketing in Africa is in French, Portuguese and English to reach local markets, but localisation is about more than marketing collateral, said Roodt. "You have to localise to the level of information systems and bespoke advertising solutions."

Drikus Kotze, Engen's general manager of International Business

Supply chain

The sourcing, storage, and distribution of petroleum molecules is ultimately the foundation that the company's business is built upon. From access to reasonably-priced products through to delivery to the end-user, the company's reputation and success depends on astute management of its resources and relationships. "When you don't have this operation under control, you often end up buying product or renting storage from the very companies that you are competing in the market place with," added Roodt.

With regards to supply, a key issue is control over stock movement, whether by monetising product quickly or avoiding demurrage charges on vessels - as high as $30,000 per day on a 33,000 metric tons tanker. (Demurrage is incurred if, due to harbour inefficiency, lack of access to deep water ports or other bottlenecks further along in the supply chain, delivery cannot be taken from a ship.)

"Linked to this is currency. The longer stock remains unsold, the greater the exposure to depreciating local currencies" said Roodt. "Steep duties on cross-border consignments add further currency exposure, forcing cross-border suppliers - and in fact any supplier with a long supply chain - to build this cost into pricing," he added.

Finally, greater investment in in-land tankage compliments our ability to control the supply chain and allows us to manage costs, quality and service levels.

"In order to make our projected targets in terms of our 10 year vision, Engen is investing in a number of growth nodes, exemplified in our upgrade of a depot in Beira, Mozambique, which in time will shore up our Zimbabwean and Zambian supply chain," said Kotze.

Regulation

Besides local ownership, Engen's regulatory preoccupations concern governance of inland supply, retail and wholesale pricing, health, safety and environment, corporate governance, and corporate and fuel taxes.

"Laws and compliance standards differ widely," said Roodt. "In all cases, it behoves companies to learn all possible regulatory dynamics."

Tailor-made

Bespoke offerings for the various dynamic markets are absolutely essential. Notwithstanding the colonial influences on language, diet etc., convenience marketing needs to take cognisance of economic realities in the specific areas of operation. "What is viewed as an essential in some markets is viewed as a luxury in others," said Roodt.

Respect

South African companies are sometimes accused of arrogance, which can turn sentiment against them. "We, therefore, remain extremely mindful of this as we do not want to conform to the stereotype," added Roodt.

Managing risk

He said underlying all these considerations is a proper risk analysis and mitigation plan - starting with burying one's expectations and assumptions.

"Often companies just don't have the frame of reference to relate to what they're seeing on foreign soil, which can leave them vulnerable.

"From a health, safety, environmental and product quality (HSEQ) perspective, Engen is committed to building capacity and competence in all of its operations inclusive of our business partners. This is done through training programmes, competence development initiatives and on-the-job support and guidance," added Roodt.

Ultimately, Engen believes in the great potential of Africa. Opportunities aligned to the development of the continent and its people inform all of its investments.

"While we take nothing for granted, it remains our on-going quest to action new business opportunities in Africa with the express intention of establishing relationships that channel benefits back to all stakeholders. This is critical for a sustainability blueprint given historical perceptions of international oil companies in Africa," added Kotze. ■

Financing emerging energy demands in Africa

An investment splurge leads renewables initiatives and industrial prospects across the continent

For years the renewable energy 'revolution' that has transformed the energy sectors of much of the world looked to be passing Africa by. Despite playing host to an abundance of potential renewable energy resources, including an above global average amount of sunshine; a large coastline with abundant opportunities for wave and wind power, not to mention geothermal potential, the continent had been slow to develop these resources.

However, in the last twelve months — led by South Africa, Kenya and Ethiopia — Africa has made great strides in catching up with the rest of the world. According to the London-based research firm Bloomberg New Energy Finance, more renewable-energy projects were commissioned in 2014 in sub-Saharan Africa than were added from 2000 through 2013.


Cameroon's Lom Pangar hydropower project

Installation and generation

In total, about 1.8GW of capacity — excluding large hydroelectric power plants, such as Cameroon's Lom Pangar hydropower project — were added with investment estimated at US$5.9bn. This compares to US$1bn of average annual investment from 2006 through 2011. Bloomberg forecasts that investment in the sector could climb to US$7.7bn by 2016. It sees about 3.9GW of renewable energy installed in South Africa from 2014 through 2016 and 1.4GW installed over that period in Kenya.

In the next five years, Kenya plans to triple its electricity generation up to about 6,000MW and according to Achim Steiner, executive director of the United Nations Environment Programme (UNEP), more than 90 per cent of the planned power is to come from geothermal, solar and wind power.

The East African country runs a geothermal power development corporation, which invites tenders from private investors bid. And under a public-private partnership it is establishing what is likely to be the largest wind power firm in Africa with a capacity of 350MW of power.

Meanwhile Ethiopia is expected to install 570MW of renewable capacity by 2016. The expansion of the Aluto-Langano geothermal power plant will see an increase in its geothermal generation capacity from the current seven megawatts to 70MW. The project is being financed by the Ethiopian and Japanese governments — to the tune of US$10mn and US$12mn respectively — and the World Bank, through a US$13mn loan.

In the Western Sahel, solar energy now powers 30 per cent of the Mauritanian capital Nouakchott's energy use. According to some estimates, this could rise to as high as 50 per cent in the next several years. In 2016, Mauritania will commission a 30MW wind farm that will bring the total share of renewable energy, including hydropower from the Manantali and Felou hydropower projects, to about 45 per cent of the country's total energy demand.

Elsewhere in North Africa and the Sahel, countries like Morocco are tapping in to the region's unbridled solar power potential. More than 85 per cent of the continent's landscape receives at least 2,000kWh/sq m/year of solar energy. And a recent study indicates that a solar generating facility covering just 0.3 per cent of the area comprising North Africa could supply all of the energy required by the European Union (EU).

The Desertec project, which is backed by several European energy companies and banks, plans to generate renewable electricity in the Sahara Desert and distribute it through a high-voltage grid for export to Europe and local consumption in North-Africa.

One hurdle that is now being overcome was how best to 'grid-link' Africa's various solar power projects. Several examples of 'grid linking' now exist, including the photovoltaic

(PV) 250kW Kigali Solaire power station in Rwanda. In South Africa, projects have been developed under the South Africa Renewable Energy Independent Power Producer Procurement Program. These include the 96MW (DC) Jasper Solar Energy Project; the 75MW (DC) Lesedi PV project and the 75MW (DC) Letsatsi PV Project. These were all developed and completed in 2014 by the American company SolarReserve.

The drive to introduce ever more sustainable sources of energy for Africa's impoverished is irresistible. With one in three Africans, 600mn people, and some 10mn small and medium-sized enterprises (SMEs) having no access to electricity; and those fortunate enough to have power paying three times as much as those in the US and Europe, Africa certainly has far to go.

At the November 2014 UN Climate Change Conference in Lima, Peru, activist groups pushed for investment and policies geared toward building clean, sustainable, community-based energy solutions in Africa to enable the continent to relinquish its dependence on fossil fuels. The International Renewable Energy Agency (IRENA), which supports countries in their transition to a sustainable energy future, calculates that in 2010 African countries imported US$18bn worth of oil.

This is more than the entire amount they received in foreign aid. Oil subsidies are also estimated to cost the region around US$50bn every year. A recent IRENA assessment found that solar and wind power potential exists in at least 21 African countries, and biomass power potential in at least 14 African countries.

But after a slow start change is now happening quickly. Steiner told IPS, "There is a revolution going on in the continent of Africa and the world is not noticing it. You can go to Egypt, Ethiopia Kenya, Namibia, and Mozambique. I think we will see renewable energy being the answer to Africa's energy problems in the next fifteen years."

> **"There is a revolution going on in the continent of Africa and the world is not noticing it. You can go to Egypt, Ethiopia Kenya, Namibia, and Mozambique. I think we will see renewable energy being the answer to Africa's energy problems in the next fifteen years.**
>
> **—Achim Steiner, executive director of the United Nations Environment Programme (UNEP)**

Energy demands from mining companies

Even Africa's mighty mining sector is jumping on to the renewables bandwagon. AFKInsider reported that several mining companies in Africa have initiated pilot projects to assess the practicality of using renewable energy. Toronto-based IAMGOLD is understood to be currently assessing the use of solar power at its Essakane mine in Burkina Faso where energy represents nearly 25 per cent of the company's costs.

African Barrick Gold, which has three gold mines in Tanzania, is also said to be exploring the possibility of deploying renewable energy at its African locations. In October 2014, the Canadian-based Windiga Energy announced that it had signed a 25-year power purchase agreement with Société Nationale d'électricité du Burkina Faso (SONABEL) for a 20MW solar power plant in Zina.

In South Africa, a solar-diesel hybrid electric plant that supplies 60 per cent of the energy for Cronimet Mining Power Solutions' chromium ore mine in Thabazimbi, and the Anglo-American PV Project in Mpumalanga, has been launched as a pilot project. AngloGold Ashanti, African Rainbow Minerals, Gold Fields, Anglo Platinum, ArcelorMittal South Africa, Anglo-American, Cronimet Power Solutions, PPC Ltd, and REVINSAMB Mineral Mining Holding are all thought to be examining options for renewables on the back of June 2014's Renewables and Mining Summit in South Africa.

The capital costs

The high start-up costs entailed in launching a renewables' project has hitherto proved to be a major barrier for many African countries. PV panels, wind turbines deep cycle batteries, metres, sockets, cables and connectors are expensive. Furthermore, it is difficult for rural electrification projects to be accomplished by for profit companies.

So, new financing models that lower the cost of capital by de-risking investments in renewable energy are currently being sought. And one such financing model which could provide the solution to the high start-up costs for renewables is the use of 'green bonds'.

IRENA director Adnan Amin said that, in 2013, US$14bn in green financing was made available. And in full year 2014 it estimates that about US$40bn in green finance will be made available through green bonds, rising to about US$100bn in 2015. UNEP has also developed a loan programme to stimulate renewable energy with attractive return rates.

In India, it sponsored a successful solar loan programme that helped 100,000 people finance solar power systems. Similar schemes

Elsewhere in North Africa, countries like Morocco are tapping in to the region's unbridled solar power potential have been launched in Africa with projects in Tunisia, Morocco and Kenya already functional with many other African projects in the pipeline.

Initiatives and enterprises

UNEP is providing assistance to Ghana, Kenya and Namibia, which has resulted in the adoption of draft National Climate Awareness Plans, publications in local languages, radio programmes and seminars. Another UNEP flagship is the Rural Energy Enterprise Development (REED) initiative, which is focused on enterprise development and seed financing for clean energy entrepreneurs in western and southern Africa.

Meanwhile, South African government has set up the South African Renewables Initiative (SARI) to develop a financing arrangement that would enable a critical mass of renewables to be developed in the country. The initiative will combine international loans and grants, as well as domestic funding.

The coming years will undoubtedly be a watershed moment for Africa's renewable energy sector. Victoria Cuming, Bloomberg new energy finance analyst, said that what is different in Africa now "is the breadth of activity, with wind, solar and geothermal exciting interest in many different countries, and the potential for further growth".

Kenya runs a geothermal power development corporation, which invites tenders from private investors bid

Banks, including the African Development Bank, which in 2014 made available loans of US$142mn for South Africa's Xina Solar One (a 100MW, US$884mn solar-thermal power project), now recognise the value of investing in Africa's renewable sector.

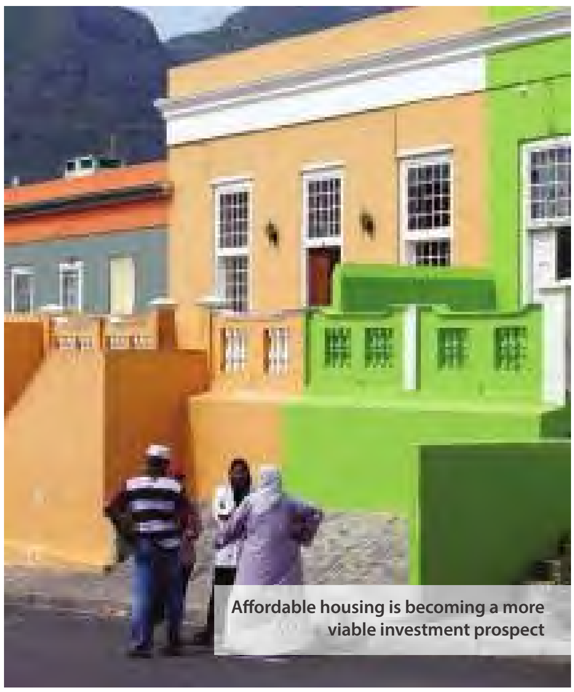
The leverage effect of renewables on Africa's economy, which for 20 years has been buoyed by commodities exports to China, can only be beneficial and should at last put the continent's economic growth trajectory along a properly sustainable track. ■

Nnamdi Anyadike

Residential risks, returns and market resilience

Two firms, International Housing Solutions and Helios Investment Partners indicate the current management climate for private equity investment in the continent

International investors anticipate significant growth in the housing markets of Africa, led by equity investment in South Africa. Investors are heavily committed, also, to technologists' ventures and to the power generation initiatives in Southern, Central and Western Africa. Two experienced players in African private equity (PE) met and spoke recently in London, in the UK, at Private Equity in Africa 2014, to highlight their work in managing risks and returns in relation to infrastructure development in select African environments.


Affordable housing is becoming a more viable investment prospect

Homes for funds, and workforce housing

International Housing Solutions (IHS) has been fund manager of the South Africa Workforce Housing Fund since 2007 following the completion of an initial round of fundraising in 2006. Presently, IHS manages R1.97bn (around US$178mn) in funds for investment in housing for those on low and moderate incomes. Over the life of the fund, around up to 50,000 housing units are expect to be built in South Africa. Up to this point, IHS has committed approximately one billion Rand towards the construction of about 25,000 housing units, both for sale and for rent.

Soula Proxenos, managing partner at International Housing Solutions, is in the process of raising a second round of funding for investment in affordable housing (also known in South Africa as Reconstruction and Development Programme, or RDP, housing). The first round was predominantly focused on South Africa, but the contemporary business case for IHS now encompasses the entire sub-Saharan African region, too.

Proxenos founded the South Africa Workforce Housing Fund, which counts Overseas Private Investment Corporation (OPIC), Citi and the Development Bank of Southern Africa amongst its investment partners. She brings with a her a wealth of experience in investment in housing.

Previously, she was managing director of Fannie Mae's international housing financial services division, where she was responsible for consulting services and training programmes, enabling and supporting the development of market-based housing. finance systems in 35 countries.

According to Proxenos, the concept of RDP housing is spreading across the continent. And it is worth noting that funding of residential construction falls in line with growth in investment infrastructure vehicles in a broad range of sectors. One example of a key African investor, with interests in other forms of infrastructure development, is Helios Investment Partners.

Enterprise in energy and electronic communications Helios Investment Partners (HIP) is focused on telecommunications, media and technology (TMT), and on power generation, in 35 African countries, and they were represented Souleymane Ba, a principal at the firm. His focus extends into infrastructure, with specific targeting of financial institutions and services - bridging international capital and knowledge to African-focused entrepreneurs and enterprises. Like Ms Proxenos, Mr Ba brings a wealth of experience to his work.

Until 2012, when he joined HIP, he was based at American PE firms Warburg Pincus and the Carlyle Group. HIP is notable, particularly, because it is one of the few pan-African private equity investment firms founded and led by Africans. And it is successful. The company manages over US$2.7bn, drawn from two funding rounds, and is engaged in raising a third funding round in the near future. Its most recent Africa-centric endeavours include investment in the East African broadband cable operation of Wananchi in August 2014, and the heavily-oversubscribed corporate bond issue of Helios Towers Nigeria in July 2014.

Monitoring risk

Ms Proxenos and Mr Ba both acknowledge that the best models for monitoring investments utilise business plans requiring resultant enterprises to act as standalone entities. The end-goal is a sustainable management framework, acted out by a standalone management team, operating independently of any investment entity well before investor exit. One understands the key word guiding all viable, sustainable, investor models is governance. One understands that the principles of governance apply to all stakeholders. ■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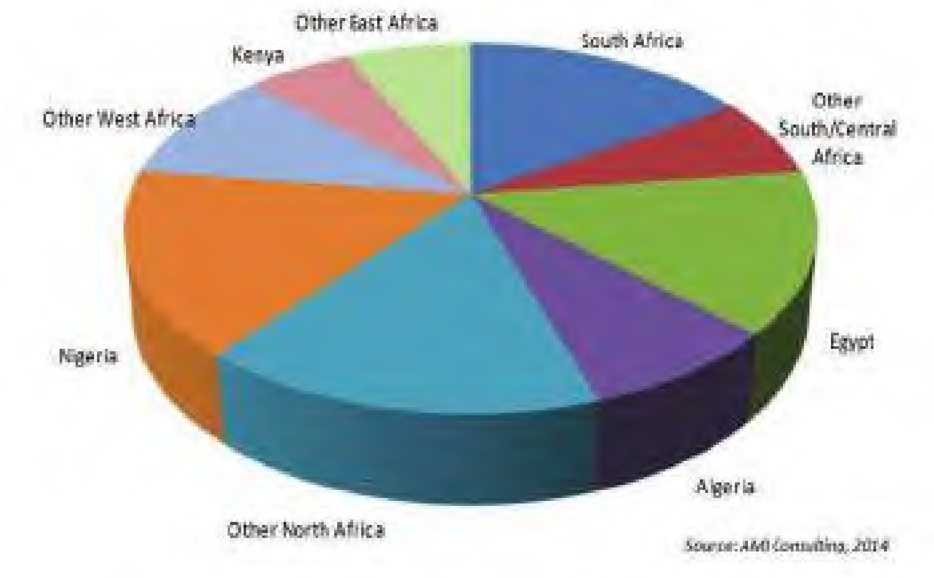
Driving African polymer demand

Research into polymer demand and production in Africa indicates both a rise in requirement for plastics, and competition over its manufacture and supply

According to industry consultancy Applied Market Information Ltd (AMI Consulting), there is now massive investment in plastics processing operations in Africa driving double digit growth in polymer demand. While much of the plastic demand is still currently imported, it is now one of the most exciting markets for polymers in the world today. However, Africa is a very complex market since market conditions are vastly different in the well developed North and South African markets compared with most other Sub-Saharan countries. Nigeria, Egypt and South Africa currently account for nearly half of polymer demand in the continent and for nearly all polymer production for the region. Despite significant investments in new capacity in these three countries, Africa remains a net importer for all resins and is expected to remain so for the foreseeable future.



Distribution of polymer demand in Africa (2014)

Construction and commodities

Commodity plastics dominate the market with polyolefins accounting for about 60 per cent of demand. This is partly because of the limited amount of manufacturing for automotive, domestic appliances and other technical products in the region. The largest volume is accounted for by polypropylene resins with the material being widely used for raffia production for bags and sacks. However, PET resin has been one of the fastest growing markets where the growing use of PET bottles for drinks is replacing LDPE pouches which have traditionally been used.

This attractive growth in demand for plastic products seen during recent years in Africa has attracted abundant foreign investment, especially from China and Indian which is expected to carry on in the future. In addition, there is some offshoring by European companies, especially in North Africa. The development of duty free zones is also encouraging investment in plastics processing operations. Another key driver for polymer demand is infrastructure development and building activity since nearly one-quarter of polymer demand in Africa is for building and infrastructure related products. A growing middle-class and the resulting increase in disposable incomes are also playing an important role in driving plastic demand. Rising wealth also drives the development of organised retailing and the selling of food via supermarkets and, at present, packaging applications account for just under half of the polymer market across Africa. Growing urbanisation will also impact on demand for packaged food but it will also have implications in terms of building methods to ensure more energy efficient and safe dwellings.

Challenges to plastics production

However, lack of sufficient local polymer production is the biggest challenge faced by the African plastics processing industry with most companies reliant on resin imports, mainly sourced from the Middle East or Asia. Exchange rate fluctuations of local currencies against the dollar add further uncertainty to the market, making it harder to compete against cheaper Chinese imports. In general, power supply in Africa is tight but also erratic and unreliable in many countries, which can dramatically reduce effective utilisation. Political instability is another key challenge in Africa, both north and south of the Sahara which can seriously impact on investor confidence and local demand.

It is clear that plastics will be called on to play a vital role in this changing continent. In its report, AMI forecasts eight per cent per year average increases in Africa over the next five years, with diverse levels of annual growth varying from five per cent in South Africa to 15 per cent in Ivory Coast. ■

Connecting curtains

Leuze MLC 500 safety light curtains are now also available as linked versions. Gerry Bryant, managing director, Countapulse Controls, said recently, "In those instances where multiple-sided access guarding is required or point-of-operation guarding is to be combined with area protection as stepping-behind protection, the use of cascaded MLC devices reduces the cost of installation and cabling considerably."

Rigid L and U-shaped connections as well as variants with flexible cable connections can be used. The host-guest variants are Type 4 devices that provide reliable protection without dead space and with maximum system availability. A particular feature is that they are unusually slim (29mm x 35mm) and extremely sturdy due to the slightly set back front screens, reinforced side walls and metal end caps. Installation of the MLC safety light curtains is very easy due to the large variety of possible mounting brackets.

Leuze light curtains can be configured as a portal for size detection on automated lines

The Leuze MLC 500 series includes the newest generation of extremely sturdy Type 4 safety light curtains. Three function classes – Basic, Standard and Extended – enable the most efficient use of devices from simple standard applications to complex controlled special safeguarding processes. The devices can be used universally, due to metal end caps, a flexible fastening concept and the option of form-locking installation. There are also variants which have an AIDA-compliant pin assignment. AIDA is an acronym for Automatisierungs-Initiative deutscher Automobilisten, or the Automation Initiative of German Automobile Manufacturers.

The basic version of the Type 4 safety light curtains provides the most important functions such as range reduction on the transmitter, reversible transmission channels, a LED display and automatic start/restart interlock. Features include the prevention of mutual interference of the sensors by selectable transmission channels and range reduction, if applicable.

The standard version of these Type 4 safety light curtains features a start/restart interlock (RES) and contactor monitoring (EDM) for increased performance, in addition to being simple to handle and integrate into existing systems. Handling is optimised due to function selection without PC as well as LED and seven-segment display. ■

Construction continues to be healthy

There are many positive developments according to KPMG's analysis of prospects for the industry in Africa

In its most recent Global Construction Survey, one of the world's top providers of professional-services found that almost half the international businesses they asked were planning to move into new markets. And Africa is the most popular choice.

"Two out of five construction companies with a turnover of up to US$5bn are interested in Africa," they said. "Much of the interest in the continent is coming from companies headquartered in Europe and the Middle East." With larger businesses the ratio is a still-encouraging 1:5.

"The attention that African countries are receiving is not without merit," the just-issued "Construction in Africa" summary report from KPMG said. "Experts see a need for basic infrastructure investment of around US$100bn per year on the continent over the next decade – a third of which is needed for maintenance.

"Three-quarters of Africa's capital stock was held by just 10 countries … 44 African countries share between them only a quarter of the continent's infrastructure."

Moses Kgosana is chief executive of KPMG in Africa. As well as a regional overview the summary contains special country sections on key sub-Saharan markets including Ghana, Kenya and Nigeria.

Threats to development

The authors point out that infrastructure deficiencies hamper development generally; this is seen by some as the single largest threat to the continent's long-term growth and development dynamics. So many governments and international institutions are now acting positively on this.

For example, a World Bank project has been tracking the number of procedures and negotiating time required to build a straightforward warehouse in 49 countries. This records an eight-point reduction in procedures compared with 2005, and a 45-day cut in processing time.

> "The rapid expansion in infrastructure seen over the past decade, the growing interest of non-African companies, and the evident positive outlook for construction in many African states, bring opportunities for the continent that cannot be ignored"

Moving on to the actual costs of doing construction business here the report quotes from the latest 'AECOM Africa Property & Construction Handbook' (www.saiat.org.za). This compares building costs in 12 cities here with international norms.

For a multi-unit high-rise residential structure the average building cost in each largest city (US$/sq m, in 2012/13) comes out locally at: Angola - $1,010; Botswana - US$769; Ghana - US$1,100; Kenya - US$558; Mozambique - US$1,050; Nigeria - US$864; Rwanda - US$837; Senegal - US$965; South Africa - US$840; Tanzania - US$869; Uganda - US$641; Zambia - US$1,283.

Comparable costs overseas include: Hong Kong - US$2,320; USA (New York) - US$4,000; and UK (London) - US$3,330. Therefore it is no wonder sub-Saharan Africa is proving such a magnet for interest right now.

So, in East Africa especially, the news and outlook are very good, and clearly budgets like these are part of what is attracting so much interest amongst international contractors these days. Better still is that there are plenty of new sources of funding available, including Public-Private Partnerships, Sovereign Wealth Funds in a few cases, and Shariah-compliant Sukuk financing. However, not so welcome to hear is that, of the US$100bn needed for local infrastructure expenditure each year, about one-third is currently missing. "This funding challenge is being overcome by many countries," the KPMG team says.

A few points are made about encouraging and benefiting from this new scenario. Project planners often have to make major yes/no decisions on the basis of inadequate information; something can be done about this, the finance team points out. Investors require a stable economic environment, not a condition that is so easy to influence. And they are usually much encouraged by the existence of a working market integration scheme, such as the East African Community. This is described by KPMG as a "beacon for regional integration on the continent.

"A shared vision for infrastructure reduces the cost of development, provides access to expanded networks for smaller countries, and allows more freely for trans-boundary projects."

In conclusion, the audit and related services specialists state: "With the rapid expansion in infrastructure seen over the past decade, the growing interest of non-African companies in partaking in this immense growth, as well as the evident positive outlook for construction in many African states, the opportunities posed by the continent cannot be ignored …

"…Africa is firmly on the radar of major construction companies, with hundreds of large projects already underway on the continent."

A useful summary of what is being built in SSA, in terms of type of project, is provided. The report also includes a country-by-country list of recent infrastructure developments offering significant construction/infrastructure opportunities, as supplied by NKC Research. ■

Cavatorta's guarantee of high security

Cavatorta's High Security Fencing consists of welded mesh panels in zinc/aluminum alloy galvanised wire and rectangular mesh. Virtually impossible to climb or cut, HSF main feature is the closeness of the horizontal wires which makes it extremely difficult to penetrate using conventional hand tools, maintaining a high level of security whilst giving excellent visibility through the mesh.

Applications to ensure security

Cavatorta's High Security Fencing system, sometimes referred to as prison mesh or 358 mesh, is supplied with its square shape posts and accessories.

It provides an ideal solution for a wide range of high security perimeter and access control applications where security is of primary importance, and particularly where good visibility has to be maintained, such as military sites, prisons, airports and schools, and other facilities. ■

Investing in innovation to reach customers

JCB's vision of serving markets with quality equipment and by enhancing operator experience is integral to its production management

Construction equipment manufacturer JCB is committed to design and manufacturing processes that integrate engines, transmissions, hydraulics and cabs. The aim is deliver products that work for customers cohesively and efficiently, to achieve minimum compromise and optimum performance. To that end, the company has invested heavily in a vision of continual improvements to product quality and customer experience. Quality and service are built-in to its manufacturing DNA.

On the factory floor, the evidence of the company's commitment to quality includes the recent acquisition, development and deployment of VisualFactory software to ensure production line quality is maintained. VisualFactory helps companies optimise manufacturing processes in line with lean production processes and a prioritisation of quality management. It enables JCB to maintain a highly flexible and responsive workforce. Integrated into JCB's manufacturing methodologies is a 'stop-call-wait' system, which empowers the company's line workers to challenge production line managers to seek improvements to processes on the factory floor. The aim is to build improvements into the products themselves, by raising quality throughout the manufacturing process.

The concept underpinning 'stop-call-wait' is simple, and is highly effective in practice. Operators bear the responsibility to stop a process when an abnormality or defect is spotted, then call for support and wait for support to arrive before proceeding. The evidence of JCB's commitment to quality continues with a £2.2mn (US$3.5mn) investment by the company in SHW machine tooling at JCB's Heavy Products plant in Staffordshire in the UK. Equipment produced by SHW is acknowledged as a benchmark in precision workmanship.

JCB manufactures its products at 22 plants on four continents - including the UK, China, India, North America and Brazil. As regards specific demand for equipment produced, the outlook is broadly stable. Some product sales are down, but some remain firm. Telescopic handlers are in greater demand, as are compact excavators.

The JS205 sets new standards in performance, durability and economy

Investing in excavators

JCB continues to take a long-term view, and to invest. Geographically, it seeks to remain a global supplier, and to remain at the top across all continents - and Africa and the Middle East is very much a part of this strategy. Mick Mohan, group engineering director, recently affirmed JCB's intent to continue to grow its business, and to invest in new products - incorporating developments in power generators, compaction equipment, backhoe loaders, and others. Mr Mohan highlighted the JS excavator range, including the 200-tonne JS205, which sets new standards in performance, durability and economy. It is highly robust, with a new boom structure, incorporating a high strength rigid upper frame.

The 20 to 24 ton segment is the most important in the marketplace, particularly with respect to the emerging markets of Africa and the Middle East The JS220 also represents the balance of power and fuel economy needed to succeed in this sector, and incorporates several modifications to its power systems to deliver reductions in fuel and more flexible properties. This vehicle is also now stronger and more robust - but more strength and power is available from the 30 ton variant, the JS300 which also boasts greater versatility with new features built in, such as the improved tipping arm and control area. Like the larger 330 and 369, it comes with the capable Dieselmax Tier 2 engine, which itself represents a genuine and innovative step-change for JCB. In less than a decade, the company has grown from being a new entrant to engine manufacturing to a major global producer with a reputation for fuel efficiency and innovation - and its Dieselmax line has been central to that new market growth.

Where JCB still utilises engines sourced externally, it still guarantees quality. The top-end JS500, for example, is powered by an Isuzu engine, which is managed by JCB's own advanced engine management system, and integrated management systems for various available equipment options.

What to use when working with waste

The machines manufactured by JCB include the JS20MH Wastemaster, a dedicated waste materials handler, designed to increase operational efficiency in the waste and recycling industry. It is designed to serve public and private companies handling municipal solid waste (MSW) in civic amenity sites, transfer stations, materials recycling facilities (MRFs) and specialist material recycling companies. The JS20MH is a high-performance, reliable and durable wheeled excavator with true material handler characteristics. It is powered by the 97kW (130hp) JCB Dieselmax engine and features a slew gear box, which delivers increased slew accuracy while loading. Its hydraulically-raised cab offers improved vision and safety on site. The 5.7m straight boom can be fitted, too, with either a 4m 'goose neck' dipper for maximum reach, or a 3.6m material handling dipper for maximum attachment functionality. The maximum achievable pin reach is approximately 9.5m.

A legacy of extending innovation

JCB's chief innovation and growth officer, Tim Burnhope, spoke recently of the JCB Loadall, which has been production for 37 years. This is a product, as Mr Burnhope describes it, which "was born out of innovation, and is continuing to deliver". Powered by a 97kW Dieselmax engine, the JCB 560-80 Loadall features a 5cu m shovel, and boasts a two-stage boom with a z-bar linkage. Customers needing extra reach can go for the JCB 540-200, which has 20m lift height, the longest in class. It is made with light, high-grade material, and is ideal for high reach in tight spaces, utilising a proportional boom extension design.

Innovation in design continues with the telescopic handler JCB 516-40, which combines the capabilities of a telehandler with the attributes of a skid-steer loader. It can access just about any environment, and is increasingly adaptable due to its new hydrostatic transmission. It is ideal for general construction work.

The 516-40 is JCB's smallest Loadall. Key points of interest with respect to design innovation are its offset single-spine chassis and hydraulic wheel motor propulsion system, improved hydrostatic drive and hydraulic services, and extra lift capacity. The permanent four-wheel drive is powered by a 37.5kW 2.2-litre JCB Diesel by Kohler engine, and can lift 1.6 tonnes to four metres - even though it is only 1.56m wide and 1.8m high. Four-wheel steering means it will turn through a radius of just 2.8m.

Stepping in size and capability, the increasingly successful Hi-Viz Loadall range comprises several models with a new chassis design - including the JCB 535-140, a full-sized Loadall with extensive reach. With its lowered boom pivot and smaller boom section, the 535-140 Hi-Viz represents a significant step forward in telescopic handler visibility - with a 10 per cent all-round increase over its predecessor - making the machine easier and faster to operate. It is, also, highly manoeuvrable, with an extra-compact wheelbase and large-steering lock angles designed to save valuable travel time on site.

Although its boom height is reduced by 235mm, and overall boom size has been reduced by 13 per cent, JCB's advances in manufacturing techniques and material choices mean that the boom section retain strength while giving ten per cent more all-round visibility. Like the 516-40, the 535-140 Hi-Viz has four-wheel drive, so that operators can get plenty of traction and performance in difficult terrain and tight spaces - but this Loadall also has two-wheel steer, which is ideal for travelling at high speed on the road, and crab steer for manoeuvring close to walls and buildings. Multi-functioning when loading or re-handling can be improved further with an optional transmission dump on the foot brake. ■

Managing equipment. It matters.

Caterpillar represents the way forward for operators seeking to improve their operations by reducing risk and costs through increased control

These days, equipment management in the construction industry matters more than ever and Africa is no exception. Between fierce competition and rising costs, margins are constantly being squeezed...and running and maintaining construction equipment can be the biggest expense. So it only makes sense to manage equipment in ways that help to reduce operating costs, improve operations and strengthen the bottom line.

Unfortunately, equipment management has traditionally meant tedious data collection, hand entry into cumbersome computer systems and lots of chances for human error.

Not anymore.

Technology makes it easy

Now, good equipment management is easier than ever. The technologies built into today's machines automatically measure performance, gather data and turn it into useful information that can be readily accessed via a mobile phone or computer. Best of all, those equipment management technologies can help make businesses more successful in four important ways.

Control costs

Automated data collection and reporting enable to see where the real costs are, so that concrete steps can be taken to bring them down - by carefully monitoring fuel costs or spotting small service issues before they cause major shut downs.

Improve operations

By seeing exactly where the machines are when they're working and when they're idling, a site manager can make better, more informed decisions that reduce excess idle time - saving fuel and wear on components - as well as help plan for maintenance and service procedures around the site or project production schedules.

Cat EMSolutions helps fleet owners and managers realise the maximum value from machines

Manage people

Technologies can tell a lot about how well and how much the operators are working, and how they should be working instead. Equipment data can show which operators need additional training and how to allocate service personnel so they stay busy without being over tasked.

Reduce risk

Accurate, timely equipment data helps deal with day-to-day uncertainties more effectively. For example, it can be used to keep up with maintenance schedules to avoid breakdowns and unplanned downtime, while tracking machine locations to reduce theft or unauthorised usage.

Connected machinery at maximum value

Several manufacturers are now adopting these new technologies and developing services around them to improve how their customers do business. For example, Caterpillar offers equipment management services branded as Cat EMSolutions, and a large part of its well-established Africa dealer base, is capable of delivering data analysis and making recommendations so that fleet owners and managers across the continent, can realise the maximum value from every machine at the lowest operating cost.

As the total number of connected machinery assets keeps growing exponentially, there is a clear industry trend towards embracing and developing connectivity technologies to overcome many of the most common business challenges. ■

Cat's dual-lock tilt coupler for mini hydraulic excavators

The DLT coupler's design allows changing work tools from the cab

The new Cat Dual-Lock Tilt (DLT) pin-grabber-type hydraulic coupler, available for 5- and 8-ton Cat mini hydraulic excavators, increases machine versatility with the ability to rotate work tools through a 180-degree arc. The design provides optimum flexibility and efficiency in applications such as finish grading, demolition, ditch cleaning, and landscaping - eliminating the need and expense of specialised equipment. The new coupler accommodates compatible pin-on work tools and allows buckets to be used in a front-shovel configuration.

The DLT coupler's design allows changing work tools from the cab, and a visible locking mechanism assures operators that tools are securely attached. The coupler's innovative primary locking system uses a wedge plate that is positioned via a hydraulic cylinder with an integrated check valve. A secondary lock is spring-applied and hydraulically released by means of a separate hydraulic circuit.

The DLT coupler incorporates an enclosed design, with no external cylinder rods or moving parts, resulting in optimum reliability, longer component life, and low cost of ownership. All internal components subject to wear are heat-treated for maximum service life, thus extending the life of bearings, seal grooves, and gear surfaces. A newly designed rotary actuator provides up to 35 per cent more holding torque, reduces overall weight by 15 per cent, and simplifies hydraulic-line routing, compared with after-market actuators. In addition, helically cut and hardened gears used in the actuator ensure positive action and long-term durability.

Coupler weights are 247 pounds (112kg) for 5-ton-class excavators plus the 903C Compact Wheel Loader and 398 pounds (180kg) for 8-ton-class excavators. The DLT coupler is available for 305C/D/E and E2 models, 305.5D/E and E2 models, and 308E and E2 models. ■

The continent's clay brick boom

South Africa's clay bricks production is becoming more sophisticated, but in the rest of Africa brick manufacture and use is underdeveloped

The Swiss Agency for Development and Cooperation recently supported a South African project to build a Vertical Shaft Brick Kiln. It is a special kiln that is energy efficient and less polluting than other methods for making clay bricks. In total, the technology reduces coal consumption (and consequently carbon emissions) during the clay firing process by as much as 50 per cent. This is in comparison with the conventional clamp kilns that dominate the clay brick firing sector in South Africa. Furthermore, the vertical frame and efficient combustion, the technology means reduced emissions of other particles and gases. The technology means that emissions can be tracked with ease. The technology is a welcome development for the industry, especially in the context of South Africa's drive to achieve international targets related to climate change.

Clay bricks are used increasingly across the continent (Photo: UNHCR/F Noy)

Project partners and a primary aim

The main participants in the project have been the Swiss Foundation for Technical Co-operation (Swisscontact) the Swiss Resource Centre and Consultancies for Development (SKAT) and the Swiss Agency for Development and Cooperation, which has helped to finance the project as part of their Global Climate Change Mitigation Programme.

"The primary objective of the project is to introduce and disseminate the VSBK brick firing technology as a viable and sustainable alternative firing technology for the clay brick industry, with many positive impacts from the economic, environmental and social point of view," according to a recently published 16th IUAPPA World Clean Air Congress paper. "The project is facilitating the transfer of the technology to the South African brick entrepreneurs, generally small and middle size family businesses enterprise. The technology offers economic, environmental and social benefits to the clay brick manufacturers and therefore to the South African Air Quality. The project partners come from both the public and private sector, with a focus on creating a suitable business environment as well as knowledge download at various levels ensuring a successful transfer and take-up of the technology."

In some ways, the emergence of such a project in South Africa comes as little surprise. The country is currently engaged in a fierce environmental battle, given its heavy reliance on coal for energy production. It is the 13th biggest contributor to carbon emissions in the world. Per capita emissions are around 8.9 tCO_2. However, now the government has committed to some considerable carbon emission reductions goals. In particular, South Africa aims to reduce its carbon emissions by 34 per cent by 2020.

According to the aforementioned 16th IUAPPA World Clean Air Congress paper, there is some way to go before this new energy efficient method of clay brick production really starts to dominate the industry in South Africa, however. "When it comes to firing, many brickmakers still make use of the clamp kiln process, a traditional firing methodology, which although has been improved upon over time,remains relatively energy inefficient and commensurate with Greenhouse Gas emissions," it says.

"In general terms all brick makers are aware of the pressure on cleaner production and more energy efficient

production [environmentally] and have spent time and money to ensure that they meet Government legislation on emissions and that their energy improvements also meet government demands and allow them to stay competitive," Att Coetzee, executive director of South Africa's Claybrick.org, also says.

Technoogy for efficiency

The Vertical Shaft Brick Kiln technology comprises an updraft kiln that is energy efficient. This kiln has a vertical shaft. Bricks are placed in at the top and then removed from the bottom.There is an unloading tunnel at the heart of each kiln so that both sides of the shaft can be accessed. The temperature for the firing of the bricks is regulated by mixing internal body fuel into the individual bricks along with a specific amount of external coal between the various stacked brick layers. The rate of loading and taking out bricks then determines the position of the fire in every shaft in comparison with the updraft. This, in effect, makes use of rising heat, which ultimately makes the whole process very energy efficient.

What makes the process even more efficient is the level of insulation that the firing shaft enjoys- it is well insulated on all four sides, so there is little in the way of heat loss. A mechanism that ignites the bricks' internal coal at a certain temperature also minimises heat loss through the kiln or exhaust gases. The exhaust gases gently preheats the unfired bricks at the top of the process. All of this can reduce the carbon emissions and energy consumption from the whole brick firing process by as much as half.

At the heart of VSBK is a "counter current principle". When the kiln lid is closed, the shaft and exhaust are effectively transformed into a chimney.

The VSBK technology was first developed in China, with the first model traceable as far back as the 1970s. The number of Chinese Vertical Shaft Brick Kilns has exploded and there were as many as 60,000 throughout China by 2000. The technology has also spread across Asia, with versions being developed in India, Pakistan, Nepal and Afghanistan. South Africa is the first African nation to adopt the technology.

The clay brick industry as a whole in South Africa is growing, although it took a hit with the global downturn a few years ago, according to Att Coetzee, executive director of South Africa's Claybrick.org. "On average the demand is up from a previous low but not at the same level as in 2007/8 before the crunch. Factors are Government spending and private spending," says Coetzee.

Bricks from Africa for African building

There have also been encouraging developments in the clay brick manufacturing sector in North Africa recently too. Recently, Tunisia's Briqueterie Boughzala, which is one of the country's most established brick makers, completed a significant expansion project that has been ongoing since 2010. Its capacity is now as much as 500 tonnes of bricks daily. Among the specifications of the new improved production site is a kiln that reaches heights of 142 metres, and a 64 balancelle rapid dryer with two brick rows. There are also mechanisms in place to increase the energy efficiency of the whole process. For example, there is a system that channels heat from the kiln into the dryer. Other improvements include an automated loading process in the packaging area of the production line.

There have been positive achievements in Algeria as well recently. Its IMJ plant in Fesdis has recently boosted its capacity to 100,000 of eight-hole and 12-hole bricks, a development that can be contextualised in terms of the Algerian government's ambitious housing policy. The Algerian company SARL BCB also has intentions to produce 28,000 tonnes of bricks through an ambitious plan to use equipment manufactured by german company LINGL.

However, in the rest of Africa, the manufacturing of clay bricks is noticeably underdeveloped. Concrete blocks tend to dominate even higher end construction in most sub-Saharan African countries. In Nigeria, for example, a monograph carried out in 2012 found that concrete blocks are the basis of 90 per cent of Nigeria's infrastructure.

Meanwhile, in Ghana clay bricks remain noticeably underutilised even though every region of the country has considerable clay deposits. A recent study published in the Journal of Construction Engineering found that "the key factors inhibiting the use of burnt clay bricks for housing construction are low material demand, excessive cost implications, inappropriate use in construction, non-compatibility of burnt clay bricks with other materials, unreliable production, and transportation problems".

According to Coetzee, the knowhow needed to manufacture clay bricks is a potentially serious stumbling block that countries will have to overcome. "The entry cost into proper clay brick manufacturing is very capital intensive, as well as skills to run the operation, could be a reason," he muses. ■

Sherelle Jacobs

Machines manufactured by JCB India, made for the world markets

JCB India now produces a comprehensive portfolio of construction and logistics equipment, including forklifts, Loadall multi-purpose vehicles, excavators and backhoe loaders.

The company's made-in-India machines include the Loadall 530-70, the Loadall 530-110, the Skid Steer SSL 135 and the Skid Steer SSL 155. The Loadalls are forklifts attached to cranes and are therefore helpful in agricultural logistics, construction and material handling. The Skid Steer 135 and 155 are machines that help in small load carrying jobs and have a side-entry.

In India, JCB is also producing its popular backhoe loader machines in the form of the 3DX Xtra, 3DX Super and 4DX. And there are the upgraded Heavyline vehicles; the company's tracked excavators feature a new cab, structure and improved fuel efficiency. Three new variants were introduced in October 2014; the JCB JS30, JS120 and JS81. There are also new variants of the VMT330 compactor.

JCB India's machines include the Skid Steer vehicles

Lastly, JCB offers the 430ZX Plus, a wheeled loader powered by the Ashok Leyland 'H' series engine - a four-cylinder naturally-aspirated 4.0-litre unit that can produce anywhere between 50 and 68PS of power.

The fast-track for SA's affordable residences

Providing a sustainable environment for South Africans to thrive is a key driver for Motlekar Holdings. Innovation across the country's key sectors is just one of the criteria it seeks when partnering with businesses. In its recent acquisition of Vela Steel Building Systems, which specialises in alternative building technologies (ABTs), one can visibly recognise its tireless pursuit of incorporating innovative construction methods to address the country's housing backlog. The affordable housing category is a key focus area for Motlekar Holdings' construction segment of its portfolio and, with this being a fundamental part of the South African Government's long-term strategic economic plan, strong growth can be anticipated.

As a continually-evolving sector, pioneering technologies are the solution to outdated traditional building methods. These all afford developers multiple, customisable housing opportunities on a small- or large-scale using energy-efficient methods of construction. Vela Steel Building Systems, now operating as Motlekar Construction Technologies and with a more fortified, resilient team of management, engineers and administration support, continues to offer superlative building systems including:

U-Truss: lightweight steel roof trusses (conventional or alternative buildings).

S-Track: lightweight steel frame walling systems (commercial, retail and residential).

Modular: structurally insulated building panels (constructing houses, schools and clinics, which are robust and simple to erect).

Vel'ekhaya: building systems (for urgent, temporary or emergency housing) Decent housing is a pivotal building block to maintain dignified and stable living conditions.

Housing opportunities encourage integrated communities, which promote a greater standard of living, and enterprise development, which act as a catalyst for community building and development. Motlekar Holdings adds value to the newly-formed Motlekar Construction Technologies venture through strategic consultation, performance management and expertise garnered from expertise and experience in the affordable housing sector. ■

VMT: a reliable partner

VMT International is part of a group of companies with over 55 years of experience in the construction business. Based in the Netherlands, it is a stable organisation that has become a global player due to its reputation of a hands-on mentality, personal service and the high quality of its VemaTRACK products. It operates on a global scale and monitors all technological and market developments in order to match VemaTRACK products and knowledge to meet customers' needs and requirements.

VemaTRACK products delivered fast

VMT International is a supplier of VemaTRACk undercarriage parts and GET parts, backed with a logistic HUB in the Netherlands and worldwide shipment options. The VemaTRACK brand stands for high quality at a reasonable price, available for all worldwide brands. All partners have been selected carefully by the company; moreover, all VemaTRACK undercarriage parts and GET parts have been fully tested and inspected. The extensive stock of all kinds of undercarriage parts and all types of GET parts allows VMT to deliver to its customers extremely quickly.

VMT is a global player with reputation for service and quality

Dealer network in Africa

VMT International offers a comprehensive, personal service to optimally support its customers. It only sells through dealers and is, on request, able to deliver directly to the dealers' customers. Furthermore, it supports its dealers through training, promotional items, digital tools and its presence at international trade fairs.

Since VMT plans to expand its business in the African continent, it is looking for local dealerships in several African countries. In short, VMT international will be a reliable partner, which stays involved in the market and will always be easy to reach. ■

If you would like further information regarding VMT International, dealership possibilities or the VemaTRACk products, please email sales@vmtinternational.com or visit www.vmtinternational.com

A promising future for paint and coatings

Hosted alongside African Construction and Totally Concrete, the Coatings for Africa exposition reflects new growth in a key market for chemicals

In line with the improving conditions of Africa's growing paint and coatings industries, Coatings for Africa 2015 symposium and expo, taking place 11-13 May 2015 at the Sandton Convention Centre in Johannesburg, South Africa, sets out to drive innovation and education in the paint and coatings industry across the continent.

The rise in opportunities

The African coatings industry remains crucial to support the continents' ever growing development requirements. The future for the paint and coatings sector looks particularly promising, given the strong economic outlook, long-term demographic growth and rising urbanisation across sub-Saharan Africa.

Recognising opportunities throughout the continent, Coatings for Africa is creating a completely new experience in 2015. With a distinctly pan-African focus and a minimum of 10 African countries represented, the event connects buyers and sellers from across sub-Saharan Africa as well as globally.

To generate additional synergies, Coatings for Africa is hosted alongside the African Construction and Totally Concrete expositions, Africa's biggest gathering of concrete and construction industry professionals and entities. Africa's only three storey expo is opening even more doors for business development.

Innovation across the value chain

A comprehensive conference programme connects the entire value chain, from raw material supplier to end users of paint and coatings products such as construction, infrastructure industrial and automotive sectors. A technical symposium showcases the latest technical innovations that drive the coatings industry across the African continent. A seminar themed 'Coatings for Construction and Architecture' highlights opportunities for paints and coatings in Africa's burgeoning construction sector. A

The African market for paints is growing (Photo: AkzoNobel)

Protective Coatings seminar discusses novelties and opportunities for protective coatings in the industrial sector, from marine and infrastructure to heavy duty and oil and gas.

An interactive exhibition

An open exhibition with interactive zones for workshops and product demonstrations completes the offering. The programme is completed by a series of free workshops for users of paints and coatings products on the exhibition floor. The exhibition offers a hands-on experience for all members of the industry provides plenty of quality networking time. Finally, the upgraded venue at Sandton Convention Centre is conveniently situated and allows easy access for attendees.

Coatings for Africa is hosted by the Oil & Colour Chemists' Association (OCCA) and the South African Paint Manufacturers Association (SAPMA) in conjunction with Hypenica and is the biggest showcase of coatings technologies, paint and related products on the continent. Coatings for Africa connects the entire value chain, from raw material suppliers to end users of the finished paint or coatings products. Attendees can expect approximately 120 exhibitors, 2,000 attendees, at least 10 African countries represented and around 30 expert speakers. ■

Learn more at www.coatingsforafrica.org.za

Combinations of colours from Dulux

According to Dulux South Africa, the Layer +Layer trend is translated into the subtle use of clusters or groups of colour, rather than a single shade used in isolation. The combination of various colours is key here, in predominantly soft and pastel hues (all augmented by copper orange); while the use of fading, overlaying and opaque materials adds to the sense of depth.

Layer+layer trend

Partners promoting construction projects

Kenyan builders and regional building ventures are spotlighted at CIBEX East Africa 2015 in Nairobi

The inaugural CIBEX East Africa was a great start for the organisers, Trade and Fairs East Africa and planetfair Group, with high-end exhibiting companies and a high-level conference. In February 2014 , 60 exhibitors from 13 countries met with 1.235 professional trade visitors at Kenya International Conference Center (KICC) in Nairobi. And most of the groups have confirmed their next participation, at the 2015 event in February. The organisers have, in fact, signed a cooperation agreement with the Kenyan Federation of Master Builders (KFMB) for 2015 and future CIBEX events. Notably, many private sector ventures and governments have shown interest in national pavilions.

The Kenyan Federation of Master Builders (KFMB) has supported CIBEX since the beginning, and it is intensifying its partnership from 2015. KFMB is a non-profit Contractors' Association, which was established under the Societies Act of Kenya to protect the interests of small and medium enterprises (SMEs) and local construction firms.

Collaborating with the construction community

The chairman of KFMB, Honourable Moses N Muihia, said after the inaugural 2014 edition, "This is a great start of a quality show. We are happy to partner with the organisers and look forward to a fruitful CIBEX future."

The organisers further look forward to the continuing collaboration with the East African Community and the Kenyan Government, the National Construction Authority, Kenya Investment Authority, East African Business Council, Export Promotion Council, the Export Processing Zones Authority and the Delegation of German Industry and Commerce in Kenya.

CIBEX East Africa 2015 takes place from 26 to 28 February in the Kenyatta International Conference Centre. Around 100 exhibitors and about 3,000 international trade visitors are expected. The exhibition is accompanied by a three-day high level conference programme. It also provides exhibitors and visitors the chance to make contacts through an organised matchmaking.

Increasing international presence

CIBEX East Africa is strategically located for all industry members; Kenya is the economic hub of the region. Attendees can get in touch with potential business partners, gather information about the market and benefit from an international atmosphere.

Kenya and its surrounding countries plan to invest millions of US dollars into relatively degenerated infrastructure. Amongst the most significant developments is a mega project, which is already on the way, in the LAPPSET Corridor - which includes a port in Lamu, a road network through Kenya, airports, oil pipelines, and much more. The construction industry booms and so the international attention for Kenya is continually growing.

One direct consequence of growth in East African construction is the multitude of exhibiting countries at CIBEX. One pavilion is supported by the German Federal Ministry of Economic Affairs and Energy. Another pavillion is held by Turkey, which will be presented by Istanbul Minerals and Metals Exporters Association (IMMIB). Other country pavilions will be organised by UBI France, the French Agency for international business development in Kenya, and from countries including Belgium, China, Ethiopia, Italy, India, Korea, Tanzania, Taiwan and Zambia.

The three-day conference programme gives attention to market developments and big projects in East Africa. ■

www.cibexeastafrica.com

Maximising investment at Mining Indaba

Key professionals meet at Investing in African Mining Indaba to push the capitalisation and development of mining interests across the continent

This is the place to be to connect with the African mining community. Taking place 9-12 February 2015 in Cape Town, South Africa, the Investing in African Mining Indaba is not only the world's largest mining investment conference, it is the world's third largest mining conference, and it is Africa's largest mining event. Two decades on from the inaugural event, seven thousand internationally-diversified and influential professionals in African mining are expected to attend. There will be representation for 110 countries and territories across six continents. There are 35 governmental delegations participating. Approximately 2,300 international companies will send delegations - of which, around 400 companies are event sponsors in some form.

Mining Indaba is the core focus for serious investors in extractive processes

The conference context

Look at the context. Billions of US dollars in foreign investment have been channelled into African mining operations over the last couple of decades. Over the last eight years of Mining Indaba, from 2006 to 2014, an estimated R552mn (US$49mn) in revenue has flowed to the local Cape economy as a direct result of the event - in the form of revenues to hotels, tourism, shopping, golf and other sectors. During the same eight year period, African Mining Infaba has caused the creation of around 4,500 direct and indirect jobs in the Cape, with 20,000 hotel room nights sold across 40 hotels in the local area.

The conference agenda is at the heart of the event. Across eight days, the working sessions are categorised into the following thematic areas: Pre-Conference Workshop; African Mining Ministerial Forum; Commodities Review and Outlook Forum; Corporate Mining Presentation; Geocentric Investor Clinic; Keynote/Featured Session; Mining Thought Leadership Presentation; Non-African Government Presentation; Securities Exchange Session; Special Information Session; and Sustainable Development at Mining Indaba.

Several leading governmental figures are set to take the stage, including: Hon. Christophe Akagha Mba, Minister of Mines, Petroleum and Hydrocarbons in Gabon; Hon. Boubacar Ba, Minister of Mines and Energy in Burkina Faso; Hon Najib Balala, Minister of Mining in Kenya; Ping Gao, Deputy Director of International Cooperation, Ministry of Land and Resources, in China; Hon. Evode Imena, Minister of State for Mining in Rwanda; Hon. Isak Katali, Minister of Mines and Energy in Namibia; Hon Joéli Valérien Lalaharisaina, Minister of Mines, Madagascar; Lord Ian Livingston, Minister of State for Trade and Investment, at the UK Trade & Investment; Patricia Malikail, Director General, Pan-Africa Bureau Department of Foreign Affairs, Trade and Development in Canada; Hon. Stephen Julius Masele, Deputy Minister of Energy and Minerals in Tanzania; Senator Philip Ozouf, Assistant Chief Minister at the Government of Jersey; HE Minister Ngoako Ramathlodi, Minister of Mineral Resources in the Republic of South Africa; Hon Narendra Singh Tomar, Minister of Mines in India; Hon Christopher Yaluma, Minister of Mines, Energy and Water Development in Zambia; and Hon HE Kerfalla Yansané, Minister of Mines and Geology in Guinea. Tony Blair, former Prime Minister of the United Kingdom, is also scheduld to present a keynote address.

In fact, Mining Indaba's African Mining Ministerial Forum brings together what is arguably the world's largest gathering of African mining's most influential stakeholders - including financiers, investors, mining executives, government ministers, deal-makers and facilitators. For deal-makers seeking direct address from Africa's most progressive mining ministers provides insight on potential new hotbeds for mining on the continent. The African Mining Ministerial

Forum is a critical component of the Mining Indaba programme, presenting a series of sessions featuring national ministers sharing priorities for collaborative action to advance mining development across their respective countries.

And, preceding the main event, is the Investment Discovery Forum, a companion conference specifically designed for serious investment professionals who are eager to uncover hidden opportunities, industry developments, learn about alternative emerging opportunities in the mining sector and discuss Africa's investment climate. This event in particular highlights how recent cyclical changes in Africa's mining market have challenged investors.

The Investment Discovery Forum will indicate how, as global economies strive to recover, investment professionals must seek out the new and immediate opportunities available to them. This pre-conference forum is a highly-detailed and in-depth executive-level meeting with a lot of extra horsepower on deal-discovery, providing investors a concentrated venue to get the detailed briefing they need on mining companies on the continent. ■

www.miningindaba.com

Tony Blair set to speak on mining matters

The organiser of the annual Investing in African Mining Indaba confirmed that former British Prime Minister Tony Blair will participate at the 2015 annual conference. Euromoney Institutional Investor managing director, Christopher Fordham, will host a 'Conversation with Tony Blair' during a special keynote presentation.

"Mr Blair has vast experience as a global leader and through the charity he founded in 2008, the Africa Governance Initiative, he has worked with African governments to improve regulation and investment oversight. As a result, Mr Blair will provide unique and charismatic insights to our global delegation who are vested in capitalising African mining," said Jonathan Moore, managing director, Mining Indaba.

Mawson West's mineral reserves in Kapulo

Mine operator Mawson West Limited has published estimates recently of mineral reserves at the Kapulo copper project in the Democratic Republic of Congo (DRC). The firm is engaged in de-risking and preparing the Kapulo copper project for first production, having commenced commissioning in November 2014. The high conversion of mineral reserves from probable to proven, at 86 per cent, underpins the improvement in confidence for the project. The mineral reserves inventory also confirms an expected average production profile of more than 19,400 tonnes of copper in concentrate per annum over the current 6.3 yearlife of the mine.

Importantly, previous estimates of mineral reserves at the Kapulo copper project were solely based upon the Shaba deposit. Following Mawson West's extensive drilling programme, the mineral reserves estimate was updated to include the proximal Safari North and South deposits.

The company is set to achieve first production during this first quarter of 2015.

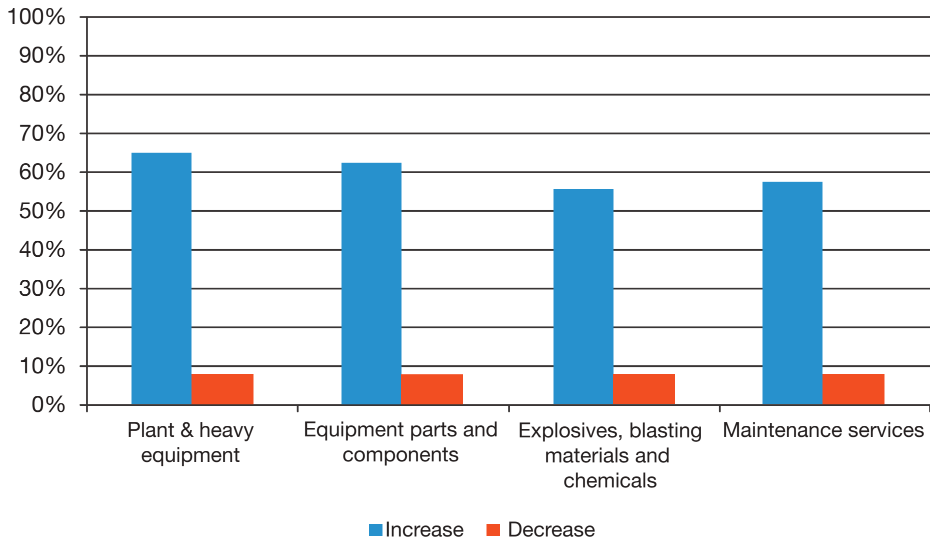
African miners aim to increase spending

According to a recent survey of over 100 African mine managers, the majority expect to increase expenditure, particularly in plant and heavy equipment, in the next 12 months.

In a recent survey of over 100 African miners, most are optimistic about future expenditure. On the whole, the majority of respondents expect expenditure to increase across the four categories investigated: 'plant and heavy equipment'; 'equipment parts and components'; 'explosives, blasting materials and chemicals' and 'maintenance services'.

Some 65 per cent of respondents expect to increase spending on 'plant and heavy equipment' over the next 12 months, and while 'explosives, blasting materials and chemicals' have the lowest share expecting an increase, this proportion is still 55 per cent.

The results are encouraging for any current or prospective supplier to the African mining industry. In particular, the high expected increase in plant and heavy equipment spending is indicative of an expansion in production capabilities.



Increase vs decrease in expenditure by category (%), 2014. Source: Timetric Mining Equipment, technology and services survey, H2 2014

Cliff Smee, lead analyst at Timetric, said, "This trend of greater spending on plant and heavy equipment and lower spending on explosives is consistent with an expanding mining industry. Mines are spending more on heavy equipment in order to increase production, with heavy machinery purchases preceding increased spend on consumables. Therefore, the results for this section of the survey suggest that the respondents view the African mining industry is in an expansion phase."

Extreme mining calls for extreme measures

Undoubtedly, the biggest challenge of deep level mining is providing a safe environment for miners. Today, gold and platinum mines descend as far as five kilometres below surface in some cases. In this extreme environment, virgin rock temperatures often exceed 60°C, requiring sophisticated cooling methods and equipment to reduce temperatures to safe levels for miners to work in.

Due to the extreme environment, underground mining operations make use of some of the largest ventilation and cooling systems in the world, incorporating more than one type of cooling technology, such as evaporative condensers, mechanical refrigeration plants, pre-cooling towers and bulk air coolers, in order to ensure a safe mine temperature.

These cooling systems typically work by sending ice or chilled water down into the mine to reduce the ambient mine temperature. The systems are installed on the surface, underground, or a combination of both, depending on the depth of the mine.

Keeping cool in hot mines

Tektower, a subsidiary of IWC, has been at the forefront of developing ventilation and cooling system technology in the mining industry for over 30 years. Recent projects include manufacturing and installing these systems into the world's biggest mining corporations, including Anglo Platinum's Amandelbult Platinum Mine in Limpopo and AngloGold Ashanti's Mponeng Mine in Gauteng.

Stuart Loftus of Tektower said, "As a mine gets deeper, the challenge of cooling the mine increases. For instance, in very deep or hot mines where temperatures exceed 50°C, ice or chilled water coming from the surface would not reduce the ambient temperature to a safe level, which means that a further cooling system would need to be installed underground to re-chill the water or ice coming from the surface."

The Mponeng Mine reaches average depths of 2.8km to 3.4km below surface and is one of the world's deepest and richest gold mines. Tektower manufactured and installed a 15.1MV, six cell Ammonia (NH_3) evaporative condenser for the refrigeration plant at the mine. IWC has a proud association with the South African gold and platinum mining industry and has provided a number of large field erected condenser cooling towers as well as both surface and underground bulk air coolers.

"Bulk air coolers are used to provide large volumes of cold air. A bulk air cooler is essentially the opposite mechanical draught cooling tower and makes use of refrigerated water to cool down ambient air and deliver a stream of chilled air into the mine workings," said Roger Rusch, MD of IWC.

Canada comes to Cape Town

The Canadian Council on Africa, for a third consecutive year, is coordinating Canada's participation at Investing in African Mining Indaba 2015. This year is special for the Canadian presence at the Indaba as the delegation celebrates 15 years at the event. Furthermore, the Canadian government is further branding Canada's excellence in the extractive industry as it launches its new strategy to support Canadian extractive industry abroad.

Beauport Bay on Jersey's south-west coast:
49° 10' 43" N, 2° 12' 28" W

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Locate Jersey

Accommodation on the Northern Cape

The houses comply with 'green' standards and feature solar water heating systems, to features such as carports and washing lines

Raubex Group showcases turnkey solutions at 476-unit housing project for Kumba Iron Ore's Sishen Mine

Operating across Africa, heavy construction company Raubex has developed its business, since its formation in 1974, from small-scale structural work on public assets such as bridges to larger-scale infrastructure development. Most recently, the Raubex Group has showcased its turnkey solutions capability at a 476-unit housing project for Kumba Iron Ore at its Sishen Mine in Kathu, on South Africa's Northern Cape.

"The success of the housing project undertaken for Anglo American at Kumba holds huge potential for Raubex in the mining services sector," said Barend Badenhorst, managing director of Raubex Housing. The project forms part of Kumba Iron Ore's commitment to convert all mine hostels by the end of this year in line with the South African Mining Charter. It is being undertaken by the Raubex Matlapeng Joint Venture.

Contractual conditions

Construction began in October 2013 and has been managed across four phases. Raubex Housing built the top structures, L&R Civil was responsible for the 13km of water and sewer reticulation. Raubex KZN built the eight-kilometre road network.

Raubex Housing achieved a rate of 1.7 houses a day with six trucks delivering 60,000 bricks a day.

The single greatest complication during this undertaking was a six-kilometre long, 700mm high-density polyethylene dewatering pipeline that bisected the site, which required installation of a pump station and associated concrete works.

About 1,500 workers were on site at the peak of the project, along with 12 excavators and ten TLBs

The project required careful coordination and management as a result of the immense scale and scope. Badenhorst said, "Essentially, this meant building the top structures while simultaneously putting in the water, stormwater and sewerage reticulation, electricity and building the road network. All four of these disciplines were on site at the same time."

The ground conditions were another challenge as the predominance of calcrete posed a major problem in terms of the installation of bulk services. A Vermeer milling machine was used to trench the calcrete to the required depth, with the minimum depth of the trenches being 1.6m up to four metres for the water and sewerage reticulation. This resulted in 80,000m3 of waste material that L&R Civil screened and crushed on site for reuse as layer works in the road construction, and to sell into the open market.

The top structures on the other hand were built on concrete rafts as opposed to foundations. About 1,500 workers were on site at the peak, with 12 excavators and ten TLBs at one stage. The workforce has since been scaled back to about 200 as the project enters the finishing stretch, with a single plastering team on site to complete the final eight houses. A key focus was investing in local skills development, with the Raubex Group establishing a contractors' camp on site to provide training in trades such as plastering, bricklaying and carpentry.

"Community development is an integral part of the Raubex Group's philosophy, as it strives constantly to add value wherever it operates. Our success is largely attributable to our employees, from management down to the workers on site. It is their passion and dedication that allows us to tackle projects of this scale, and to achieve such a consistently high level of quality and productivity," Badenhorst said. "To have a complete project handed over from a developer like Raubex Housing, which took full responsibility and managed it from start to finish, is bringing a totally new perspective to bear on the market. This successful developer model is Raubex Housing's main success on this project, where it has proved particularly beneficial to Kumba Iron Ore." ■


A six-kilometre long, 700mm high density polyethylene dewatering pipeline bisected the site

Russia's platinum prospects in Zimbabwe

How fresh investment in Darwendale could prefigure improved economic conditions and a revitalised trading environment

Zimbabwean President Robert Mugabe and Russia's foreign minister, Sergey Lavrov have signed several agreements in recent times, with a view to developing a US$3bn platinum project in Darwendale, some 70km west of the capital Harare.

The good news for Zimbabwe, which is desperately seeking any sort of investment which can take the country out of its current economic doldrums, is that the project would be the largest single foreign investment into Zimbabwe's troubled economy and would equal nearly a third of the country's estimated gross domestic product (GDP). The bad news for Zimbabwe is that a South African mining firm, which believed it had a licence to extract platinum near the site, and invested millions prospecting and producing a feasibility study, and was then kicked off its claim, won an order to seize all Zimbabwe's diamonds sold in Antwerp.

Managing indigenous assets

The land, which includes the site Russian investors secured, used to belong to South African-owned Zimbabwe Platinum (Zimplats), which ceded it to the government of Zimbabwe in 2006 for empowerment credits and cash, but was never paid out. The argument between Mugabe's government and Zimplats about "indigenisation" of its assets is still simmering.

Zimplats is still owed about US$150mn from that enormously-rich but geologically complex asset. Part of the land was also portioned out to other potential investors who have not yet decided whether to begin mining or sell off. Initially it was thought the new platinum mine was ready to go, but some mining engineers in Zimbabwe say some more exploration is still needed, which will cost between US$30mn and US$40mn and take 17 months from start to finish.

Various potential Russian and Chinese speculators and potential investors have been prospecting the former Zimplats land for nearly a decade. Several licences have been issued for this vast chunk of platinum-rich land, some of which have been bought and sold. The Russian venture is the first one to get to start up. A mining insider in Zimbabwe said, "It is going to be a geological challenge for them. This is very different land from what they are used to working with in the Russian palladium mines. Let's hope it works and provides jobs, but it is going to [be] a long haul and difficult."

Project partners producing more platinum

At full project development in 2024, the platinum mine - which will be the biggest in the country - will mine 10 million tonnes of ore to produce 800,000 platinum ounces, pushing Zimbabwe's output over one million ounces, and create 8,000 jobs.

The platinum project's annual production of 800,000 ounces of platinum will be more than what the current biggest miner - Zimplats - is producing.

Zimplats, which was forced to close its biggest two million tonnes of ore per annum mine two months ago after collapsing, produced 240,000 ounces in its full year up to June 2014.

Russia has, in recent years, increased its mining interests in Zimbabwe where it is already exploiting gold and diamonds in the eastern Marange diamond fields. Using its mineral wealth, Zimbabwe has been developing new sources of financial support among emerging economic powers such as China and Russia as relations with the West fail to improve.

Zimbabwe's Pen East Investments has teamed up with Afronet, a consortium of three Russian partners, to form Great Dyke Investments (GDI), which is developing the Darwendale project. GDI is chaired by Hesphina Rukato, a former deputy chief executive at the secretariat of the New Partnership for Africa's Development (NEPAD), an economic development programme of the African Union.

The first stage of the mine, expected to complete in 2017, involves a US$600mn open pit mine, with a projected output of 265,000 oz per annum creating 2,000 jobs. A PGM concentrator and smelter will also be built during this stage.

In the second stage, set for 2018-2021, there would be the extension of the concentrator and setting up of smelter.

Output is expected to rise to 530,000 oz per annum, with 5,000 jobs added and investment reaching US$1.2bn. Officials said there is a provision for the establishment of a refinery, subject to ongoing discussions, which would bring the total investment level to US$4.8bn.

Russia's Vneshecombank is lead financier, while Rostec is the technical partner. Afronet and VB Bank signed a funding deal before President Mugabe and Lavrov.

"The advent of the Russians in Zimbabwe's platinum scene will bring an additional 250,000 ounces to our current output of 430,000 ounces within the next 36 months," said Zimbabwe's Mines Minister Walter Chidhakwa, who added that the first two years of the project will be open cast mining, going underground in the third year.

The mine has a lifespan of 20 years, with potential to reach 34 years on further exploration and would see the Darwendale concession on 217mn tonnes of high grade ore, compared to Unki Mine's 76mn tonnes. Unki is owned by South Africa's Anglo Platinum and is one of the three currently active platinum miners in the country, along with Mimosa and Zimplats. ■

Barnabas Thondhlana

Assessing mining project risks

Consultants underline research into factors affecting mine sustainability ahead of African Mining Indaba

Miners, ministers and other mining industry players gather at the Cape Town African Mining Indaba in February under a cloud of low commodity prices, rising mining costs and falling productivity - a risky environment that requires higher levels of technical certainty, according to SRK Consulting. According to SRK chairman and corporate consultant Roger Dixon, "Tough economic conditions are making it harder to fund new mines or even sustain existing operations, so explorers, developers and operators must ensure that the risk factors are well understood and mitigated."

Detailed knowledge of technical factors

As margins for proposed mining projects are squeezed between softer prices and higher costs, there is less room to deal with project risk, said Dixon; the key to success is to properly address the various 'modifying factors' that stand between a prospective deposit and a viable mine.

With a 40-year reputation built initially on geotechnical engineering, SRK Consulting has grown into a global network of engineering consultants with in-house expertise ranging from exploration, mining and infrastructure engineering to water, tailings, and social and environmental impact assessment. He said, "Integrating the various technical disciplines is the only way to fully understand project risk. Open pit economics, for example, are heavily dependent on the pit slope angle. To optimise this angle, a detailed knowledge of the structural geology is required, as well as rock characteristics and groundwater behaviour. The three areas of knowledge can then be integrated into the preliminary mine design, and pit optimisation runs can be completed with confidence."

He emphasised that this integration extended not only to technical factors but to the engagement of stakeholders like communities, governments and non-governmental organisations, from the earliest possible stage in the planning process.

Vassie Maharaj, director and principal consultant in stakeholder engagement, SRK Consulting

Operational risks

Vassie Maharaj, director and principal consultant in stakeholder engagement at SRK, said that mining companies' social licence to operate - their acceptance in the host country and amongst host communities - is now ranked within the top ten operational risks.

"So companies realise that this is a mission-critical area, but many don't know how to build and sustain those relationships beyond just doing what is necessary to comply with regulations or to get the permits they require," said Maharaj. "This poses real risks, as stakeholders are becoming impatient in their expectations of what benefits mining should bring, and are more assertive about their expectations and needs. With the rising tide of resource nationalism, host countries and communities hold greater power than ever to withhold their acceptance of mining activities."

A related risk gaining more attention was the impact of mining on water resources in host communities and countries. SRK partner Kurt Uderstadt observed, "Contamination of water resources is perhaps the key environmental consequence of mining, and any mine's disregard for integrated water management issues will ultimately render it unsustainable."

He said better planning at an early stage - to manage potable and non-potable water supply, surface drainage, groundwater supplies and groundwater ingress - would reduce mine developmental costs, improve regulatory compliance, avoid litigation, and provide sustainable mine closure initiatives.

According to Dixon, this reflected SRK's aim of helping clients to plan mines with closure in mind - an approach increasingly demanded by national mining regulations across Africa. SRK principal scientist and associate partner James Lake said more governments now require that closure planning and liability costing receive significantly more attention from operations than was historically the case.

"In the past, mine closure often received insufficient attention during mine planning, making operations difficult and very costly to close down - often requiring significant materials re-handing to meet closure criteria," said Lake. "Authorities are likely to scrutinise aspects like the liability assessment more closely in future, and could hold mining executives liable for not implementing closure plans."

More than ever, risk management in this increasingly regulated environment demands a multi-disciplinary approach based on technical excellence and expertise rooted in local knowledge, said Dixon. ■

Guinea gains iron mining interests

The developing investment framework affecting iron ore extraction and processing in West Africa

Guinea's government is planning to tender permits for half of its famous Simandou iron ore area. However, lawsuits, low iron ore prices and serious questions about the scale of work that the area needs to become operational is casting a shadow over the whole enterprise.

Interest in Guinea's mining potential centres around the area of Simandou in southern Guinea, a rugged region peppered with mountains. Simandou is staggeringly rich in iron ore, having the largest known untapped reserve on Earth, with extremely high quality iron ore at that. It is estimated that the country could enjoy iron ore production levels of as much as 200mn tonnes a year for 25 years, which would be 7% of global iron ore output. "The potential of the mining sector in Guinea is extremely large, especially in terms of Bauxite or iron ore says Billo Diallo, KPMG's mining lead for Guinea.

The government says it is currently looking to tender permits for the northern half of Simandou, although a firm timeframe for the purchases is yet to be announced. The government expects them to go for no less than US$100mn.

"Simandou is not a small mine," Guinea's President, Alpha Conde recently told reporters. "Therefore, we have to make a correct call for tenders."

Among those that have shown an interest are Glencore Plc and ArcelorMittal, according to insiders. BSG Resources (BSGR), the former tender holder, which was stripped of its rights in 2010, is trying to block the tender and it had filed an arbitration request with the International Centre for Settlement of Investment Disputes against the country to this end.

Legal deliberations and action

Guinea has been dreaming of tapping the potential of Simandou for some time; the state first handed out exploration rights covering the whole of Simandou to Rio Tinto in 1997. Rio Tinto then lost its exploration rights back in 2008 in a dramatic twist, after it was accused of doing little to nothing with its mining stakes in the country. BSG Resources then snapped up the exploration rights in a controversial deal which did not require BSG Resources to make any upfront payments. The firm soon sold over half of its interest to leading global mining company Vale for US$2.5bn. However, things started to go sour for BSG Resources when a new democratically elected government that came to power in 2010 alleged that BSG Resources had made bribes to secure its bargain exploration deal and took away BSG Resources' rights.

Risky, capital intensive iron ore projects are also looking less attractive in the context of current iron ore prices

A complex series of lawsuits has ensued. BSGR is pursuing action against the Guinea government for taking away its Simandou interests. Vale is also pursuing an arbitration suit against BSGR claiming that it spend money on a concession that BSGR had unlawfully obtained, offering bribes for.

Both BSGR and Vale are the object of a further lawsuit filed by Rio, who has accused the pair of trying to conspire to gain key information on Rio's Simandou development. According to Rio, which now controls just the southern half of Simandou, Vale pretended to be interested in buying Simandou's rights so that it could gain access to confidential intelligence which it could then use to develop its own site. Rio Tinto alleges that it has lost billions as a result of the situation that has developed and is consequently seeking "compensatory, consequential, exemplary and punitive damages…in an amount to be determined at trial".

Rio Tinto further claims that the former Guinean mining minister, Mahmoud Thiam, accepted a US$200mn bribe for helping BSGR to gain mining licenses for the half of Simandou that Rio lost back in 2008.

"At the time defendants devised their fraudulent scheme, Rio Tinto had spent eleven years and hundreds of millions of dollars developing mining operations at Simandou and expected it to yield substantial profits into the future," according to Rio Tinto's complaint, which it filed against Vale and BSGR in the United States District Court for the Southern District of New York in April 2014.

The complaint details how Rio Tinto and Vale first started having discussions about the possibility of Vale buying a stake in Simandou in August 2008. There were two face-to-face negotiations in New York in November "during which Rio Tinto provided Vale with highly confidential and proprietary

information regarding Simandou. Rio Tinto provided this information in good faith pursuant to a confidentiality agreement that required Vale to treat the information with discretion and solely for the intended purpose – to determine whether Rio Tinto and Vale could agree to terms on Rio Tinto's interest in Simandou".

According to the complaint, "Rio Tinto's proprietary information showed Vale both the extraordinary value of the Simandou concession and how to develop it. As Vale quickly surmised, gaining control of the Simandou deposit would strengthen Vale's position in the world's high-grade iron ore market.

"Defendant Vale saw a golden opportunity to not only obtain that control, but to do so on the cheap, when Vale learned from Rio Tinto that Defendants Steinmetz and BSG Resources Limited were attempting to interfere with and steal Rio Tinto's rights to the Simandou concession. Given BSGR's reputation for corruption and bribery—well known among those active in the mining industry, including Vale - Vale was on notice that Steinmetz's and BSGR's efforts to misappropriate Rio Tinto's rights included bribing various Guinean officials."

BSG Resources has responded with a statement alleging that Rio Tinto lost its concession because it had failed to develop Simandou when it had chance. "This is the latest absurdity in the charade created by Guinean president Alpha Conde's illegal crusade to reward political allies who helped rig his election. Rio Tinto chose to do nothing with its mining rights so the mining rights were taken away. Baseless and bizarre lawsuits like this won't change that fact."

When BSG Resources filed its complaint against the government of Guinea in September, it also said, "The action will for the first time allow BSGR to address in an impartial court the allegations of wrongdoing that have been brought against the Company by the Government of Guinea. BSGR believes these allegations to be founded on false evidence and looks forward to demonstrating this through the ICSID arbitration process.

"BSGR has suffered significant economic and reputational harm as a result of these allegations and the expropriation of its assets. The company is confident that by going to ICSID and proving the evidence to be false, it will be able finally to defend its record in Guinea and to protect its significant investment in the country which will benefit the people of Guinea."

The contextual challenges

With the labyrinthine legal intrigues that have come to define the Simandou project, it is easy to overlook some of the more fundamental challenges facing the project. The vastness of the work that needs to be done at Simandou, much of which is infrastructure-based, is staggering. Six hundred and fifty kilometres of railways, 24 kilometres of tunnels and 35 bridges need to be built to get the minimum transport logistics in place to make Simandou workable.

Diallo of KPMG emphasises the fiscal improvements that the country needs to make. "Other infrastructure is important as well. The country needs to address its tax administration. Such things need to be prioritised before the country can move forward," he said.

Risky, capital intensive iron ore projects are also looking less attractive in the context of current iron ore prices. At present prices are roughly US$95 per tonne, which is less than half of 2011 prices when it was US$200. Nor is this the end of the story, with iron ore prices expected to tumble even more over the course of the next few years.

The Ebola outbreak has also only been negative for investor confidence in the West African nation, which has suffered 5,600 deaths and 15,000 infections according to figures from the World Health Organization.

Furthermore, there are concerns that Rio Tinto's southern Simandou project could experience serious delays. Although the firm signed an investment framework in May, the official 2018 target date for commercial production looks increasingly unlikely.

Not all experts see this as a particularly huge catastrophe, however. "The delay is not a big matter. This is the biggest project ever in the history of Guinea. For me the it's all about being ready to ensure that this project reaches its full potential," said Diallo from KPMG.

"Rio Tinto is a very big investment. The fact that there has been a delay is not a big problem. The country needs to be ready and needs to be well prepared with a project of this scale. The country has to have the administrative and labour capacity. We're talking about the employment of more than 10,000 people through this project. It will truly transform Guinea," said Diallo.

Diallo points to other problems, however. "There have been no new investors for two years," he said.

Diallo also flagged finding qualified workers as a big sticking point for the future. He said, "One of the biggest challenges facing this project is finding people. There are issues with the lack of skills among the local population, If the country can train a number of people for this project then it will have a very positive impact for the Guinea GNP."

In a country which is one of the poorest in the world and ranks 178th out of 187 in the United Nations Development Programme, there is a lot riding on the Simandou project. If one thing is clear it is that the mining companies involved and the Guinea government owes it to the people of the country to make the project more than a pipe dream. ■

Sherelle Jacobs

MBE Minerals lowers costs with beneficiation technology

A supplier of iron ore and coal beneficiation technology, MBE Minerals SA offers basic and detailed engineering, components for complete plants and systems including modernisation and capacity increase measures, as well as automation and process control equipment. The company's scope of services includes feasibility studies, raw material testing, financing concepts, erection and commissioning, personnel training and pre- and aftersales services.

Pneuflot technology from MBE Minerals SA continues to attract global attention as a flotation technology of the future, already surpassing the popularity of conventional technology, with 82 installations in coal globally and magnetite and haematite (itabirite) flotation in South Africa.

MBE Minerals SA's BATAC jig technology has been field-proven through extensive and diverse test work to deliver higher efficiency, huge economic benefits, better product quality, better machine availability and higher throughput rates. The main advantages are its excellent separation accuracy, its relatively small footprint and comparatively low capital cost.

Pneuflot cells are simple in design, with a high yield of froth product

The Palla Mill from MBE Minerals SA can pulverise materials of any hardness

Since its introduction to the marketplace, MBE Minerals SA's ROMJIG has proved particularly suitable as a reliable and economical solution in destoning raw coal. The lower percentage of refuse in the washery feed means reduced wear on machinery and transporting equipment, less grain degradation, less dust and slurry and reduced consumption of flocculation and flotation agents in downstream fines recovery circuits.

The robust Jones Wet High Intensity Magnetic Separator (WHIMS), operated at up to 14 ,500 Gaus, offers a high throughput capability coupled with simple maintenance and lower energy consumption. The WHIMS is ideally suited to treating feebly magnetic minerals with a particle range from 20 microns up to 1.5mm with unit throughput capacities from 500 kg/h up to 250 tph. MBE Minerals SA recently completed the largest WHIMS plant in the world outside of Brazil in the Northern Cape.

The Permos Medium Intensity Magnetic Separator (MIMS) drum type unit from MBE Minerals SA is suitable for materials which can be attracted by a field strength of between 2,000 and 5,000 Gaus.

"Designs for both dry and wet feeding are available from MBE Minerals SA," said Niekerk.

The Palla Mill offers the flexibility of being suitable for wet and dry applications in primary and secondary grinding and for pulverising materials of any hardness. This technology has a major advantage over other machines as it is capable of grinding more than 100 different materials, including a range of minerals and commodities previously considered unviable due to the costs involved.

"This technology is known for being able to produce ultra-fines in a very tight Particle Size Distribution (PSD)," Niekerk said.

MBE Minerals SA also manufactures a variety of vibrating screens, available up to 3.6m in width and 6.75m in length, in single or double deck configuration and in either circular or linear motion. The company's screens have been operating in the African mining industry for the past 40 years, mainly in the coal, diamond and iron ore sectors.

The robust Jones Wet High Intensity Magnetic Separator (WHIMS) from MBE Minerals SA offers a high throughput with low maintenance and energy costs

Growing links with the African mining sector

Jersey is touted to be one of the most attractive centres for business in Europe as mining firms pay no tax

In recent years, the island of Jersey has emerged as an attractive centre for the headquarters of a growing number of exploration and mining companies.

At the end of 2014, there were 19 mining, natural resources and associated businesses located in Jersey, thanks to a number of relocations and business launches.

This represents considerable growth. The first mining company was established in Jersey in the mid-90s and, since then, a number of mining firms and companies involved in the exploration and development of a range of minerals and natural resource siteshave followed suit. Not only has Jersey seen growth, but it has also witnessed diversification in the sector. The oil and gas sectors have expanded, as has the range of firms offering ancillary services to mining companies. There is good reason for this success. For mining executives, having easy access to business support and financial expertise within a stable jurisdiction like Jersey can be highly valuable, for protecting global assets and ensuring that business strategies can be rolled out effectively.

Positive relationships

Recently there have been a growing number of instances of Jersey being selected as the European headquarters for mining firms from all over the world, including Africa — a key market for Jersey.

This success has been the fruit of a ramped-up programme of activity to build strong relationships between Jersey and Africa. The year 2015, for example, saw the biggest delegation from Jersey attend Mining Indaba, including a broad cross-section of professionals including trust companies, lawyers and IT specialists.

These efforts have resulted in a rise in the number of African firms seriously considering Jersey when looking for a European base.

In a recent report conducted by Capital Economics entitled Jersey's Value to Africa, it was estimated that extractive industry firms in Jersey are responsible for around US$75.6bn of investment into Africa. The growth we are seeing could see that figure rise even further.

Work expertise

Firms are being attracted to Jersey for a variety of reasons, including its corporate and personal tax regime, straightforward regulatory framework, no-nonsense approach to business, and financial services expertise and stable pro-business government. Jersey is one of the most attractive tax regimes in Europe — under its corporate tax regime, mining companies pay no tax while, with there being no capital gains tax, the kind of shares and options payments model that mining companies often employ works well. The personal tax rate of 20 per cent is extremely appealing too.

Jersey has built a globally recognised finance industry of the highest repute that can deliver the kind of services that mining firms demand, from corporate structuring and accountancy services to specialist legal advice, and the ability to efficiently handle high volumes of cross-border financial transactions. With 110 Jersey companies now listed on major exchanges worldwide, with a combined market capitalisation of US$406.8bn, Jersey has also established itself as a centre for listings work, which is highly attractive to mining firms seeking to access investor capital. The high regulatory standards Jersey demonstrates, as acknowledged by the World Bank, the OECD and the IMF, also offer mining executives and investors peace of mind.

For mining executives, having easy access to business support and financial expertise within a stable jurisdiction like Jersey can be highly valuable

From a time-zone point of view, Jersey is conveniently positioned for the major investment markets and operating regions too, whilst with fast and frequent connections to London and other European hubs, travelling to other parts of the world is straightforward.

Because the relocation of a firm's headquarters inevitably involves the executives and their families moving too, an attractive lifestyle is also a major consideration. Jersey offering a low rate of personal income tax, mining executives also appreciate its excellent work-life balance, diverse portfolio of properties, and first-class health and education systems works well for residents.

With a commitment to building positive lasting relationships with Africa and further mining and natural resources companies looking to relocate to Jersey in the coming months, Jersey's position as a strategic European centre of substance for African mining companies looks strong. ■

Wayne Gallichan, Director of Inward Investment and International Trade, Locate Jersey

Materials Handling

Bobcat's telescopics, set to serve several industries

Bobcat's telescopic handlers are available for a series of industrial applications, across Africa. Its telehandler portfolio includes the TL360-TL470, the high flow TL470HF ag model, and the T40140/T40180.

The high horsepower TL470HF telescopic handler is powered by the 97.5kW (130HP) **Perkins** 1104D-E44TA diesel engine. It offers higher horsepower and torque for superior performance and has a maximum travel speed of 40km/h.

The TL470HF offers significantly increased torque, enabling improved performance and productivity. Combined with a new load sensing pump delivering a hydraulic flow of 190l/min, the TL470HF model offers faster cycle times at a lower engine speed when performing both single and combined boom movements. This helps to reduce fuel consumption and improve efficiency.

The TL470HF telescopic handler has a maximum lift capacity of 3.5t and a maximum lift height of 7.0m. The capacity at full lift height is 3.0t, while the maximum forward reach is 4,002mm and the lift capacity at full reach is 1,500kg.

Like the other new TL models, the TL470HF is designed to handle demanding jobs in both construction and agricultural applications. The boom design, which features a fully integrated boom head, larger cross section and a longer boom overlap, ensures that the machine is well equipped to carry out the most demanding loading applications. A robust main frame and protected chassis ensure maximum strength and protection for a long and productive service life.

Superior visibility

The right rear corner of the cab is free of structural components, providing an unobstructed view across the entire rear of the machine. In the front, the rounded windscreen and the lower pivot point for the boom ensure the operator has unmatched visibility of attachments at all heights and boom extensions.

The TL470HF telescopic handler offers higher horsepower engine and a 190l/min load sensing hydraulic pump

Leading load chart performance

The T40140 and T40180 models deliver superior load chart performance in their classes, when operating on tyres alone, where the high stability of the telehandlers ensures minimal loss of lift height and capacity. As a result, the T40140 model offers the highest lift capacity of 4.1 tonne, whilst the T40180 telehandler has a maximum lifting height of 16.2 m when on tyres.

The hydrostatic transmission in the T40140 and T40180 telehandlers provides a 95 per cent performance efficiency, providing high power coupled with low fuel consumption - making it possible to place a load to the exact mm. In addition to precision, this is an important factor contributing to safety, particularly when loads have to be positioned at significant heights or distances from the machine.

The Bobcat side shift system is a standard feature on the T40140 and T40180, ensuring there is no need to reposition the machine if it is not aligned with an opening, maximising flexibility with a +/- 700 mm side shift. This is combined with an integrated frame levelling system which works independently of the main frame to provide a tilt correction on inclined surfaces of +/- 4o on tyres and up to +/- 12o on stabilisers for safe, optimum positioning of loads.

Safer control capabilities

The FNR control on the joystick, first seen on the Bobcat TL470 and TL470HF 7 m telehandlers, ensures the operator has maximum control at their fingertips, allowing the driving direction to be selected at the touch of a button while still keeping a grip on both the steering wheel and the joystick for improved safety and productivity. Semi-automatic wheel alignment provides automated assistance to the operator ensuring the wheels are always aligned when changing between the three steering modes of 2-wheel, 4-wheel or crabbing. Auxiliary flow control is also easily and precisely controlled from the joystick.

The digital display provides the operator with an easy to understand and quick overview of machine performance, including an LCD readout for the continuous frame levelling angle. When the levelling function is activated, the readout on the display screen changes automatically, to show the angle of the machine to one side or the other, so that the operator is always fully aware of the working conditions.

The boom angle value showing the inclination angle of the telescopic boom is also available on the LCD screen to promote precise movements and faster work cycles for repetitive tasks. Contributing to the fast work cycles is the top speed of 30km/h, which allows these models to move quickly between locations, cutting down on travel time.

The design of the telehandlers ensures minimal loss of reach when deploying their stabilisers. Increased safety is provided by the stabiliser detection system, which continuously monitors the pressure in the stabilisers on the ground to ensure there are no drops/leaks to ensure safe usage of the stabilisers at all times. The easy-to-use compact stabilisers ensure that the full capabilities of the telehandlers can be utilised in the most confined working areas and close to walls. In addition, optimal steering capabilities with minimum steering angles make the machines extremely manoeuvrable and easy to position at any job site.

Electricity solutions

Evolving needs of the African power consumer - Indo Asian a Quality answer

Indo Asian will be showcasing at major platforms such as Dubai's Middle East Electricity and Germany's Hannover Messe in March and April 2015 respectively

African markets are on the path of multi-dimensional growth supported by resilient and resourceful people who battle challenges every day. Safe power is something basic and as important as a home, food and water; and plays a pivotal role in developmental progression. India, being a traditional partner in most African markets, continues to play an important role in the power sector and with new regime signing up trade agreements and focusing on bilateral trade, this is only going to be more pivotal to the cause.

Indo Asian is a leader in the Indian industry for making protection and distribution equipments since 1958 and is now part of global leader French major Legrand Group. The company has been on the forefront to provide quality solutions to several African markets, triggering the small-change-big-difference phenomenon.

African consumers are now craving for cost-effective optimal safe products with consistent performance and all stakeholders pursuing this objective are

firmly acting to block the inferior, fake, unsafe or non-standard products. It has triggered in regulating markets at the entry point by taking the help of reputed agencies like BVQI, Intertek and SGS. Approvals like SONCAP (Nigeria) and KBS (Kenya) protect customers from risk.

Indo Asian is taking steps and collaborating with major power utilities to help them redefine standards so that safety and performance are main virtues for a region where millions of homes still need to be connected and budget is a constraint.

In its endeavour to do so, Indo Asian has been involved intensely in prestigious World Bank-funded supplies with custom-built solutions, which take care of adverse operating conditions and usage. A classic example has been the association with PHCN (Power Holding Corporation of Nigeria) for the Niger Delta electrification project across Nigeria.

The company been increasing its footprint and currently operates in 16 countries. It aims to cover most of the continent by 2020 as African markets are strategic to its goals.

"We are on the threshold of adding a new generation of the products in near future which will bring more smiles and joy. We are also embarking on comprehensive CSR drives to express our concern for the community and the major drive will be educating masses with the *Buying Genuine Be Safe* initiative."

Indo Asian will be also showcasing at major platforms such Middle East Electricity Exhibition (MEE), which will be held in Dubai from 2-4 March 2015 and Hannover Messe in Germany from 13 to 17 April 2015 at Hall No 13 – Indian Pavilion.

The Hannover fair is expected to be a big opportuntity as India is the partner country at the show and the best of Indian brands will be showcased.

How Bobcat loaders handle harbour work

Loaders made by Bobcat are being used in Europe for shiptrimming applications in ship holds, where it again works in conjunction with crane-mounted grabs on the quayside to unload ships carrying bulk cargoes such as grain and animal feed. At Poole in the UK, which is Europe's largest natural harbour, an 863 can be seen, a crane-mounted grab is used in the process of unloading ships by taking as much cargo as possible and loading trucks on the quayside. The 863 forms new mounds for the grab to work with, exhibiting the outstanding manoeuvrability for which Bobcat loaders are renowned, utilising differential steering for highly efficient manoeuvring and super fast cycle times, with a hydrostatic drive enabling precise control of the speed and direction of the loaders, both forwards and backwards, in any situation.

The 863 has been used in Poole since 1999 - but now there is a new, more dynamic vehicle to take on the brunt of the work. The Bobcat S630 radial lift path skid-steer loader has recently been deployed, as it has been designed and built to offer the highest levels of performance, efficiency and operator comfort. Powered by the Kubota 55.4kW V3307-DI-TE3 kW Stage IIIA diesel engine, the S630 is part of the new generation loader range from Bobcat, providing a significant increase in power, hydraulic performance and productivity. With an operating weight of 3,496kg, a rated operating capacity of 989kg and a tipping load of 1,978kg, the S630 complements the S650 vertical lift path loader. The standard hydraulic flow on the S630 has been increased by over 30 per cent to 87.1l/min, providing significantly better attachment performance. The high flow version of this loader, the S630H, offers a hydraulic flow of 115.5l/min.

Bobcat's new S630 has been optimised for port handling duties

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