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African Review

November 2015

of BUSINESS and TECHNOLOGY

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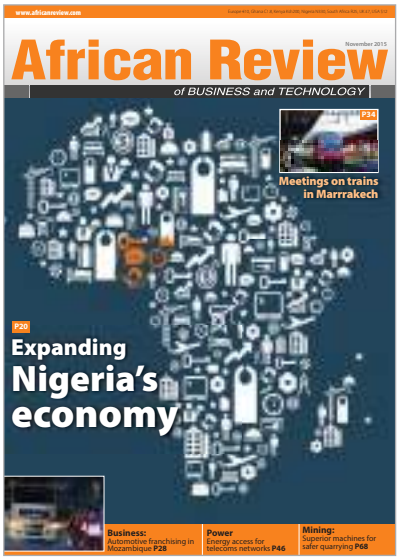
THE NEW SPIRIT OF AFRICA

Editor's Note

From page 20 to page 28, this magazine assesses investment in Nigerian infrastructure, the development of Nigerian agricultural economy, business prospects for Ghanaian nut production; and an automotive franchise in Mozambique. On pages 30 and 32, this issue addresses examining the roles of insurance brokers and new approaches to data centre management. From page 34 to page 38,there is analysis of transportation, with reports from a conference on railway stations in Morocco, a port development project in Ghana, and a logistics operation in Nigeria. Water and power are the focus from page 40 to page 52. Within these pages, there is a report on intervention to enable access to water in South Africa, on efforts aimed at reducing water-borne disease, on an a pilot electricity production project in Ethiopia, and on prospects for the continent's wind power industry. There is also an assessment of decentralised, distributed power generation, of initiatives to enable energy access for mobile communications networks; of standby power options; and of lightning protection. From page 54 to page 63, the construction sector is covered with assessments of excavators, cement solutions; and software for heavy-duty applicattions. Finally, from page 54 through to page 71, the mining sector is served with appraisals of machines and procedures for aggregate producers and quarry workers.

Andrew Croft, Editor



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Agenda / North

Moody's expects BMCE to continue profitably across the continent

Banque Marocaine du Commerce Extérieur (BMCE) is one of three large Moroccan banks that have expanded ambitiously into Sub-Saharan Africa over the last 10 years, mostly via acquisitions in francophone West and Central African countries. According to capital markets research and services firm **Moody's**, BMCE in particular can be expected to continue to increase profitability, mitigating risks arising from pan-African expansion.

"While the bank's Sub-Saharan operation has increased its exposure to higher asset quality volatility, it has also resulted in rising profitability, well above Moroccan banking system average" said Olivier Panis, a VP-senior credit officer at Moody's. "This is primarily thanks to its lending growth opportunities, higher yields and a large deposit base that provides BMCE with a low-cost and fast-growing funding profile."

Moody's data shows that BMCE's Sub-Saharan Africa portfolio, which represented 23.5 per cent of the group's total loans as of June 2015, contributed to almost half of its revenues and 28 per cent of its net income.

Egypt set to show at Fruit Logistica

Egypt is the official partner country for Fruit Logistica 2016, the international trade fair for the fresh produce sector, set to take place on 3-5 February in Berlin, Germany. The North African country will focus on demonstrating its potential and presenting its high-quality products to win over trade visitors.

CEO of event organiser **Messe Berlin**, Dr Christian Göke said, "Today, Egypt plays a significant role in the global fresh produce industry with substantial fruit and vegetable exports to 145 countries."

Egypt exported US$2bn worth of fresh produce in the 2013/2014 season, primarily to Russia, Saudi Arabia and Great Britain. Iraq, the United Arab Emirates, Libya, Italy, the Netherlands and Kuwait are also important customers.

Export volumes rose from 1.7mn tonnes in the 2005/2006 season, to 2.9mn t in the 2013/2014 season, a 69 per cent increase.

In the 2013/2014 season, Egypt's main exports included citrus fruits (1,142,000t), potatoes (688,000t), onions (359,000t), grapes (99,000t), pomegranates (85,000t), strawberries (34,000t) and green beans (31,000t).

The Egyptian exhibition presence is organised by the **Egypt Expo & Convention Authority (EECA)**.

Etisalat seeks new telco regulation

The relationship between Africa' s communications network operators, regulators and policy makers must be refined to match the evolving needs of the ICT sector, according to **Etisalat Group** CEO Ahmad Julfar. He explained, "In the 1980s or 1990s, the governments intervened to deregulate the telecoms industry, and it was the right decision. And at that time the objectives and the KPIs of the regulators and the policy makers was to introduce competition, improve coverage, reduce prices, increase penetration, and introduce new services and the internet.

"Today, these objectives have been fulfilled, 100 per cent, or for some of them, partly. So this is where a new intervention is required today: to set new objectives for regulators and policy makers of the ICT industry, in order to increase investment, create more jobs, have more spectrum, so that we have coverage and better speed and better capacity, and ultimately this will lead to the government making more from the taxation it applies."

Hellas Sat chooses Newtec for DTH station

Arab Satellite Communications Organization subsidiary **Hellas Sat** has chosen **Newtec** solutions to power a new multimillion Euro direct-to-home (DTH) earth station to serve broadcast markets across the Midle East and North Africa.

Located in Cyprus, the earth station will broadcast up to 70 TV channels, ten per cent of which will be delivered in high definition (HD). Most of the content will be received via different television receiver-only (satellite dishes) (TVROs) and all content will be transcoded and re-multiplexed into different bouquets, which are then uplinked via Arabsat's BADR satellites.

Newtec is the prime contractor, designer and integrator of the entire DTH earth station. It also provides its Newtec M6100 Broadcast Satellite Modulators, Ericsson TV encoding and multiplexing equipment, two 7.6m antennas and an umbrella network management system.

Hellas Sat CEO Christodoulos Protopappas said, "With Newtec as a long term partner and now taking the lead building our new earth station, we are confident we will offer even better services in the future. Thanks to the advanced capabilities of Newtec's M6100 modulator, we will benefit from unprecedented bandwidth and efficiency optimisation options, thereby lowering our OPEX and allowing us to deliver a reliable, high-quality and competitive service."

The M6100 features robust design and industry-leading redundancy solutions, resulting in the highest system reliability and service uptime. Newtec's Equalink 3, Clean Channel Technology and the latest transmission standard DVB-S2X are also all available on the modulator as software upgrades. Newtec CEO Serge Van Herck said, "Not only does the M6100 meet Hellas Sat's needs today but, thanks to its support of DVB-S2X, it also supports potential future requirements, like the launch of 4K and HTS satellites."

Agenda / East

Powering Africa in Tanzania

Ranked among the 20 fastest growing economies in the world and with abundant untapped natural resources, Tanzania remains one of Africa's most promising growth markets.

The 3rd annual Powering Africa: Tanzania meeting will welcome decision-makers from Tanzania's local government, utility and regulator to meet with energy leaders and international financiers in Dar es Salaam from 3-4th December 2015.

Discussions will present solutions to attract private investment in 2015, giving an exclusive update on the country's 2014-2025 reform plan.

Participants will debate strategies to strengthen the project planning and procurement process and encourage the development of IPPs, enabling the country to realise its long-term vision of stable power supply and industrial advancement.

This third edition of Powering Africa: Tanzania follows on from the success of two events held in 2014, where senior officials from the **Ministry of Energy & Minerals**, **TANESCO**, **EWURA**, **TPDC** and the **Dar es Salaam Stock Exchange** invited regional and international power experts to join them in timely discussions regarding the future role of the recently-unbundled state utility TANESCO.

Africa's increasing tourism industry

The hotel and tourism industry in Africa is beginning a period of sustained growth, according to the sector's leading experts gathered at the Africa Hotel Investment Forum in Addis Ababa, Ethiopia.

Flight bookings for the next six months suggest a sustained recovery (Source: Bench Events)

The conference heard that inward international flights were recovering after being hit by the ebola outbreak. And the hotel sector reported significant expansion, as well as increased visitor numbers, boosted by demand from African business.

For the fifth year, **AHIF** brought together 500-plus leading international hotel investors, local operators, ministers, government officials and industry experts from around 40 countries. The immediate good news came from ForwardKeys, which monitors future travel patterns by analysing 14mn reservation transactions each day. Its analysis showed there was an increase of 6.4 per cent in international arrivals in September in Sub-Saharan Africa. The upturn marked a turning point after the ebola outbreak, which had wiped out four years of strong growth.

Flight bookings for the next six months suggest a sustained recovery. The data shows arrivals on-the-book (bookings for travel in future) from October 2015 to March 2016 are now running 4% ahead, compared with the same period last year.

Mauritius jons debate on Ocean Economy

The Ocean Economy – sometimes referred to as the Blue Economy – is becoming a topic of increasing importance, not only for small island developing states but also for the world as a whole, and is one of the key action points of the Sustainable Development Goals. As the **UNCTAD** report of 2014 stated, the Ocean Economy promises significant development opportunities but also raises challenges in sectors such as sustainable fisheries and aquaculture, renewable marine energy, bio-prospecting, transport and tourism.

Event organiser **DMA** recentlly co-hosted a roundtable with legal firm **Brown Rudnick**, which represented the Ocean Economy from the perspective of one island state, Mauritius. Situated in the Indian Ocean, Mauritius has developed from a low-income, agriculture-based economy to a middle-income diversified economy based on tourism, textiles, sugar, and financial services. In recent years, information and communication technology, seafood, hospitality and property development, healthcare, renewable energy, and education and training have emerged as important sectors, attracting substantial investment from both local and foreign investors.

Long acknowledged as one of the major success stories of Africa, Mauritius is now looking forward under its Government's Vision 2030, planning the next stage of its economic development in which the ocean economy will play a major part, with the aim to double its contribution to Mauritius' GDP over the next ten years.

A senior Mauritian delegation, led by Dr Jawa Lallchand, chairperson of the new **National Ocean Council**, which has both public and private sector representatives, outlined at the roundtable the areas in which Mauritius will be seeking investment opportunities. Not simply a 'future vision', since projects are already underway in a number of the sectors, Dr Lallchand and the delegation also stressed that this is work in progress, with many projects being developed further.

Agenda / South

JCB and ABSA form financial alliance

JCB Finance equips dealers with a finance proposition for all business sectors

Construction equipment manufacturer **JCB** has formed a strategic alliance with **ABSA Bank Ltd**, acting through its Vehicle & Asset Finance division (ABSA) under the trading name of JCB Finance in South Africa.

Wessel Steffens, managing executive at ABSA Vehicle and Asset Finance division, said, "Our relationship with JCB will assist us in delivering finance solutions to key players in sectors such as construction, mining and farming and has the potential to also provide small and medium enterprises with a solid foundation for continued growth and success. The partnership further improves our ability to exceed the expectations of our customers – and this is just the beginning."

JCB Finance is expected to play a key role in the development of JCB equipment sales in South Africa in the years ahead. The company has already seen benefits from the ABSA partnership with as many as 50 per cent of its customers taking advantage of special finance packages to acquire new JCB equipment. David Dolbear, general manager, financial solutions Africa at JCB commented, "The introduction of JCB Finance to the South African market will help us to deliver innovative financial solutions to the construction, agricultural and industrial segments of the market. The combination of our excellent South African dealers with their strong customer focus and outstanding service pedigree, together with the extensive reach and excellent market reputation of ABSA make this a perfect combination to increase JCB's penetration into the South African market through the JCB Finance programme."

Aurecon's plans for Johannesburg

In South Africa, the goal of the **City of Johannesburg**'s Growth and Development Strategy is to create a future city that is people focused, caring, smart, sustainable, democratic, financially successful and institutionally functional. However, Johannesburg's administration, and its residents face a number of challenges in order to achieve these goals.

Aurecon has been appointed to create a Consolidated Infrastructure Plan (CIP) for the city. The goal of this CIP is to consolidate and integrate planning, implementation and management of infrastructure-related programmes in order to meet the City's current infrastructure backlogs and future growth needs. Infrastructure acts as the enabler for economic development to attract investment to an area and assist in social upliftment. Two of the biggest challenges that the city is currently facing – and will continue to face without a CIP – are uncoordinated spending on infrastructure and effectively accommodating the rising population.

Nedbank, Bytes and Volante work towards ISO 20022 adoption

Financial software provider **Volante Technologies** and its South African partner **Bytes Universal Systems** have been selected by **Nedbank** to facilitate the transformation of its financial payments message service layer across multiple Nedbank entities.

Bytes Universal Systems will be responsible for the deployment of Volante's VolPay Foundation, an optimised platform for the development of financial payment message integration, validation and processing. Through the partnership, Volante and Bytes are efficiently addressing key financial messaging challenges impacting the South African market.

VolPay Foundation accelerates many of the required development processes through automatic code and documentation generation and inbuilt testing. The platform also includes validation and conversion logic, predefined functions, mapping tools and pre-built transformations. More than 330 maintained local, regional and global message standards and transformations are included along with automated deployment into multiple environments.

Mark Neethling, general manager: financial services at Bytes Universal Systems, said all South African institutions, from banks to payment service providers and corporates, are required to make major changes to their infrastructure and processes. He observed, "Speed of development and time to market are of the essence and, in Volante's VolPay Foundation, we have chosen the best-in-class software available for the transformation, validation and processing of financial messages. Coupled with our local expertise and market presence, we have created the best possible combination of software and implementation skills to help Nedbank bring new innovations to market faster, meet the needs of its customers, and realise new commercial opportunities."

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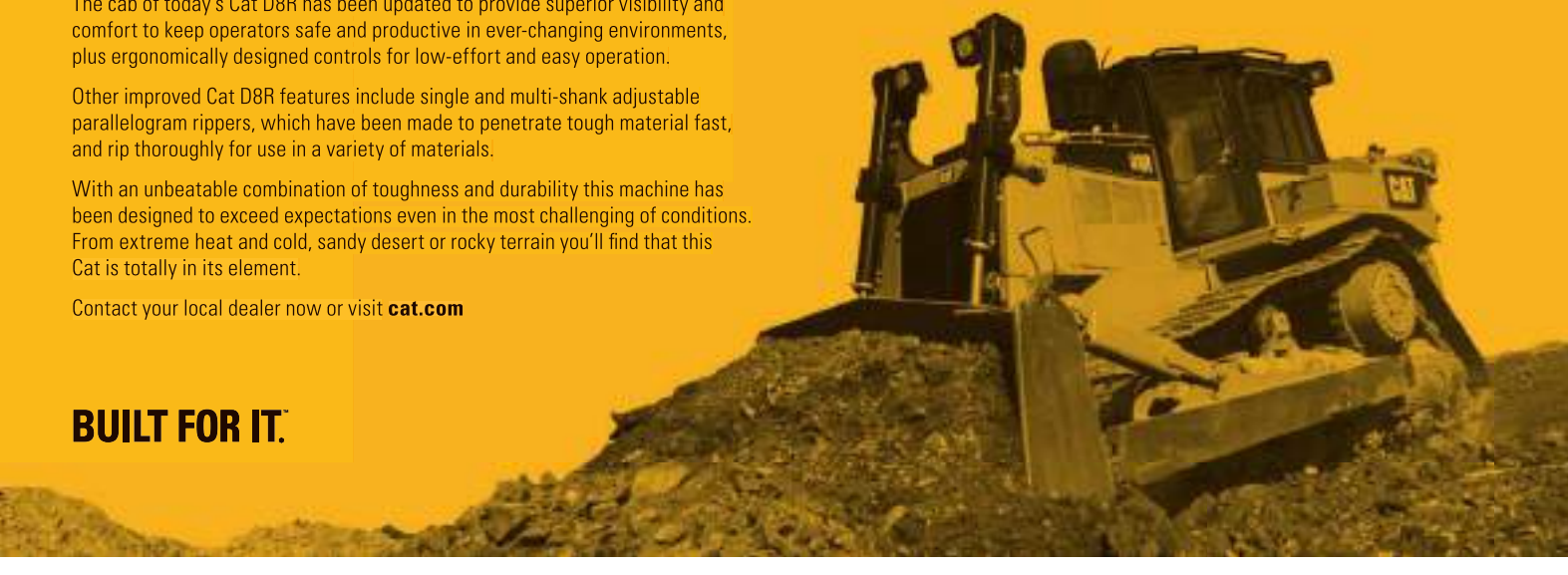

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Agenda / West

Access Bank Nigeria upgrades channels with CR2's BankWorld

Nigerian financial institution **Access Bank** has selected the BankWorld omnichannel suite developed by software provider **CR2** to manage self-service channels including ATM, Internet, and mobile.

With CR2, Access Bank will be empowered to reduce their operational costs by managing all channels from a single point while also having the opportunity to generate revenue through the launch of targeted and personalised services. In addition, Access Bank will also be able to offer a range of innovative and convenient payment facilities new to the Nigerian market.

"Herbert Wigwe group managing director at Access Bank said, "We aim to become the leading bank in Nigeria and provide new services that will change the way people bank. Having a best of breed self-service offering, providing convenient banking and managing all our client's relationship from a single place are at the heart of our strategy and we believe that BankWorld will help us to achieve our vision."

CR2 is cementing its experience in the Nigerian financial market, the signing ceremony between Access Bank and CR2 follows a strategic alliance with Global InfoSwift, CR2's local partner in the country.

"Franky Van Damme, chief executive officer at CR2 said, "I welcome Access Bank as a new client of CR2 in Nigeria. We believe that CR2 can help Access Bank in offering their customers innovative and unique services across their entire electronic self-service network. We are committed to innovation and look forward to working with Access Bank to deliver cutting-edge banking and enhanced customer experiences"

This strategic alliance with CR2 was celebrated at Access Bank's headquarters in London, in the UK

Siemon and BICSI promote ICT

Network infrastructure specialist **Siemon** recently sponsored and took part in the inaugural 2015 BICSI Middle East and Africa - Nigeria Conference & Exhibition, held at Muson Centre in Lagos The event attracted over 200 delegates, who heard from industry experts about the role information and communications technology (ICT) will continue to play in nation building and the advancement of one of Africa's largest economies.

Siemon's business account manager for West Africa, Olajide Olagbenro, attending the exhibition, commmented, "The fact that so many people took time out to find about the latest developments in enterprise and data centre network infrastructure technology highlights just how importantly ICT is taken in Nigeria. Taking part also put Siemon firmly in the spotlight and gave us excellent visibility in a country where we have already experienced high levels of success – something that we are looking to build on in the future.'"

NPA presses for better port infrastructure

The managing director of **Nigerian Ports Authority (NPA)**, Mallam Habib Abdulahi is advocating for the provision of adequate port infrastructure by the country's **Federal Government** and the private sector to facilitate export activities through its seaports. He is arguing for the provision of appropriate port infrastructure as a necessary requirement to enhance trade in the economy, Hence, the Authority is prepared to would encourage any effort designed to change the trade orientation of the nation from import dependent to export.

The NPA MD's views were represented recently in a presentation NPA general manager for capital projects, Engr Rufai Mohammed, whose paper, titled 'Providing Enabling Port Infrastructure to Enhance Trade', was delivered at the two-day International Seatrade and Investment Convention (ISIC) 2015, held recently under the theme "Exploring New Trade Frontiers".

Engr Mohammed reiterated that, as globally-accepted seaports account for over 80 per cent by volume of International trade and commerce, competitive seaports must have a robust infrastructural base. His presentation spotlighted infrastructural improvements embarked upon by the Authority in all its four pilotage districts, and the impending 25-year port master plan, which has reached an advanced stage. Such efforts position the NPA to meet the demand of all categories of port users for both imports and exports.

Malam Habib explained also that the Authority was consolidating and entrenching the gains of port reform by facilitating and synergising the activities of private terminal operators, shipping lines, freight forwarders and other stakeholders.

"Sustained efforts at providing the enabling port infrastructure has impacted on the overall port operational efficiency," he observed.


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KPMG, Digital Skills Academy support SA's IT industry

The South African practice of professional services firm **KPMG** has signed an industry partner agreement with international educator **Digital Skills Academy**, in a move set to boost high-end practical IT skills.

Participants studying for Digital Skills Academy's International BSc Honours Degree in Digital Skills gain real life experience through collaboration with KPMG's Johannesburg office. They will work with cross-functional international teams of coders, managers, marketers, sales professionals and designers on industry partner projects proposed by KPMG.

The agreement supports the development of digital products and services including the development of mobile applications, websites and web services, software development, digital marketing and social media campaigns or prototype development.

Paul Dunne, CEO and founder of the Digital Skills Academy, said, "The partnership with KPMG is the first of a number similar arrangements we will be announcing in South Africa and illustrates our desire to work alongside globally recognised corporate brands so that we are able to offer the very best in cutting edge experience to our degree participants. It is a reflection of all the great things happening at the moment in South Africa's tech scene."

Heidi Volschenk, partner at KPMG South Africa in Johannesburg, added, "We aim to develop skillsets in the digital space in tandem with the Digital Skills Academy team, in the context of both the professional services environment and in terms of the more general international trends in the digital technology and digital business sectors."

Zambian retail skills boosted

Small shopkeepers and bar owners look set to cash-in on a new initiative launched by **Zambian Breweries** that aims to give them the skills to grow their businesses.

The Mama Mpapa retailer development programme gives entrepreneurs an opportunity to expand their capacity and improve their output significantly.

Mama Mpapa is a Bemba term that depicts a parent-child relationship that grows over time and results in the productive independence of the child, and which entails supporting both family and community.

The Zambian Breweries programme is aimed at developing and nurturing small retailers, manual distribution centres (MDCs) and retailer taverns through targeted skills development in order to create an enabling environment for small businesses within urban and peri-urban areas across the country.

Bulletin / Agriculture

Continental's advanced agricultural solutions

Automotive supplier **Continental** is contributing to greater productivity and efficiency in agriculture with sustainable and innovative solutions, pressented at Agritechnica 2015 in mid-November; the company offers a new fully-programmable terminal to help farmers in activities such as manoeuvring and precision farming, rubber tracks give tractor units a secure grip on soft yielding ground, and exhaust gas treatment solutions to contribute to the reduction of emissions.

Bosch Rexroth's variable pump for low-power equipment

In introducing an axial piston variable pump for hydraulic systems in the new size 18, **Bosch Rexroth** has narrowed the price gap to identically-sized gear pumps, so manufacturers of mobile equipment in the agricultural sectors can now implement the efficiency-enhancing technology on tractors and vehicles of 37kW and higher, and auxiliary drives on larger vehicles; the company's A1VO unit offers a range of available control types – pressure control, load-sensing control and electronic control – providing an economically-attractive alternative for many hydraulic systems that previously used fixed pumps.

Bosch Rexroth's pump technology improves machine efficiency by up to 16 per cent, while simultaneously lowering exhaust emissions

IFC and Cargill support Ivorian cocoa farmers

Côte d'Ivoire's cocoa farmers are benefiting from new trucks to transport their crops thanks to a leasing programme supported by **IFC**, **Société Ivoirienne de Banque (SIB)**, and the agricultural company **Cargill**; the three institutions are helping thousands of cocoa farmers from dozens of cooperatives increase profitability and productivity by leasing trucks instead of purchasing them outright, offsetting prohibitive repair and maintenance costs.

Use Arocs for modern agricultural logistics

On show at Agritechnica 2015, **Mercedes-Benz** offers Arocs, a tractor-trailer designed for transporting agricultural goods; the Arocs 2051 is deployed predominantly transporting on longer distances, for shuttle operations between field and silo, for example, and is fitted with an agricultural set of tyres, an efficient hydraulic system by the company **Bruhns**, and an agricultural semi-trailer that enables a fast unloading.

Mercedes-Benz Arocs 2051.

A global food and agriculture plant genetics gateway

Delegates from the136 member nations of the International Treaty on Plant Genetic Resources for Food and Agriculture (ITPGRFA) have given their approval to set up an international information gateway for the genetic data of food crop seeds; the agreement to proceed with the proposal for a Global Information System (GLIS) from the **FAO**-based seed treaty came during the week-long meeting of the 6th biennial Governing Body that was held recently in Rome, Italy.

Agricultural equipment market to reach US$201.03bn by 2019

Published by **MarketsandMarkets**, a report entitled 'Agriculture Equipment Market by Region & Propulsion (Self-propelled & Implements); Self-propelled Equipment Market, by Type; Implements Market, by Function (Harvesting, Planting & Fertilizing, Haying, and Plowing & Cultivating) - Forecast to 2019' classifies and defines the agriculture equipment market in terms of value, highlighting the potential growth opportunities for the agriculture equipment market in the coming years, and also covers the review of the drivers, restraints, opportunities, challenges, competitive landscape, and other key aspects related to the agriculture equipment market; the report also provides qualitative and quantitative insights on key markket players including **AGCO Corp**, **CNH Industrial NV**, **Iseki & Co, Ltd**, **JC Bamford Excavators Limited**, **Kubota Corporation**, **Mahindra & Mahindra Limited** and **Deere & Company**.

Kubota's new M6 tractor offers utility and deluxe features

Machine manufacturer **Kubota Tractor Corporation** has introduced its new M6-Series, a line of four utility tractors, ranging from 82 to 114 PTO horsepower, featuring a 24-speed power shift transmission, spacious four-post cab and in-cab flow control for optimal rear hydraulic performance. Kubota's new M6-Series tractors are designed for a variety of agricultural uses including hay production, dairy and cattle operations.

Kubota introduces new M6-Series utility tractors

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Bulletin / Automotive

Mahindra upgrades and restyles the XUV500

The thoroughly-updated XUV500 has spearheaded the **Mahindra** brand's push into the highly competitive sport utility vehicle (SUV) segment with a modern, powerful, spacious and well-equipped vehicle; significant updates and improvements include a complete overhaul of the SUV's aesthetics, with particular emphasis on the front-end styling.

Attention to detail adds to XUV500's appealy

A new generation of the Mercedes-Benz G-Class

All **Mercedes-Benz** G-Class models now offer up to 16 per cent more power and up to 17 per cent lower fuel consumption, including the G 350 d with improved performance from 155kW to 180kW, and the Mercedes-AMG G 63, also with improved performance from 400kW to 420kW; a new suspension set-up, together with more sensitive ESP control, results in increased driving stability, safety and road comfort, while the exterior and interior have also been given an upgrade.

The new G-Class models retain the familiar sturdy basis of body and ladder-type frame, which still offers generous reserves to cope with the increased power

Goodyear finds new fit for the Range Rover Sport

Tyre manuacturer **Goodyear** is now fitting the Range Rover Sport with its Goodyear Eagle F1 Asymmetric SUV tyres, a fitment that represents many years of working with **Jaguar Land Rover**; the Eagle F1 Asymmetric SUV fitment complements the car's on-road dynamics and agile handling, whereas the tyre offers cornering control so pressure is evenly distributed and road contact is maximised when cornering at a speed. It also provides improved handling on wet roads versus its predecessor via an asymmetric design that increases contact with the road surface and channels water to prevent aquaplaning. Finally the tread pattern reduces noise for a quieter, more comfortable drive to match the luxurious interior of the car.

Safe, seamless self-driving user interface from Volvo Cars

Volvo Cars has revealed one of the industry's most advanced and easy-to-use interfaces to oversee how drivers will transfer control to a car's autonomous driving (AD) mode in its forthcoming cars; the advent of autonomous driving technology means that the relationship between a driver and a car's user interface is of crucial significance. A safe and seamless handover of control is the cornerstone of any trustworthy AD technology.

Volvo Cars has designed its IntelliSafe Auto Pilot to be simple and intuitive

Ford Everest matches rugged character with refinement

The all-new **Ford** Everest redefines the sport utility vehicle market with bold design,

Body-on-frame construction, intelligent four-wheel drive and an advanced Terrain Management System help navigate challenging terrain with confidence

advanced technology, exceptional off-road and on-road capability, and a refined, premium interior for up to seven passengers; "With the all-new Ford Everest, we're launching an extremely capable and competitive premium SUV that performs equally well as a comfortable and refined family vehicle or taking on the roughest terrains," said Tracey Delate, general marketing manager, Ford Motor Company Sub-Saharan Africa, describing how the construction, four-wheel drive and Terrain Management System help navigate challenging terrain with confidence.

Isuzu's MY15 KB range balances performance and luxury

Bakkie specialist **Isuzu** has broadened the appeal of its iconic KB by adding three carefully-configured derivatives to the range, bringing the tally of models to 18; newcomers include a two-pedal 4x4 flagship model with features like a class-leading infotainment system and keyless entry and start/stop, while mechanical upgrades include a significantly uprated version of the 2.5-litre DTEQ turbodiesel for Fleetside and LE models.

Each Isuzu KB is purpose-built for a clearly-defined role in a demanding market

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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

Barclays Africa launches financial initiative

Barclays Africa has launched a global start-up community called Rise that is meant to pioneer financial services and aid with unlocking Africa's potential.

Barclays Africa chief information officer Ashley Veasey (Photo: Barclays Africa)

The initiative is being funded by Barclays, and will tap into technology solutions that are not reliant on physical infrastructure, said the company in a statement. Through Rise, African start-ups will have the ability to scale up their ideas in new markets.

Barclays chief design and digital officer Derek White, who is also the architect of the global Rise programme, said, "Rise is about connecting the world's most active innovators to each other, to corporates and to resources and by expanding to another continent means we're able to broaden this network further. We're unlocking the power of open innovation to co-create the future of financial services, which will ultimately benefit customers and clients across the globe."

www.africanreview.com/finance

Doosan and Bobcat equipment used during Suez Canal extension

Doosan and Bobcat equipment has played a key role in the extension of the Suez Canal, which was opened earlier this year by Egypt President Abdel Fattah el-Sisi. Otrac Heavy Equipment, the authorised dealer for Doosan and Bobcat equipment in Egypt, revealed that it supplied a range of equipment to the country's defence ministry for extension of the Suez Canal. Otrac Heavy Equipment chairman Hatem Ouda said, "Our machines have been taking part in this great project and are now considered a part of Egyptian history."

www.africanreview.com/construction-a-mining

African business leaders ahead of peers in risk assessment and management

Executives and board members of Africa-based companies are taking effective steps to address risk strategy and management, placing them well ahead of their global peers, revealed a PwC report entitled *Risk in Review 2015*.

Continuous political, economic and social developments have caused concerns among African businesses, in addition to inadequate infrastructure, improper access to healthcare and food security, as well as the effects of climate change. While the penetration of technology in Africa is on the rise, the sustenance of this technology has not been consistent. Simultaneously, however, there has been an increase in awareness towards cyber crime and cyber terrorism.

Risk management and impact assessment is on the agenda for various African companies engaged in different businesses such as construction, mining and IT (Photo: Luke Schmidt)

www.africanreview.com/manufacturing

Solar solutions commissioned in Nigeria

Schneider Electric, along with Green Village Electricity Projects Limited, Arnergy Solar Limited and the Bank of Industry Nigeria Limited, has commissioned low-cost off-grid solar energy solutions for rural communities in Nigeria.

The off-grid system will attempt to reduce the carbon footprint of six Nigerian states, as well as providing power (Photo: wallybird)

Schneider Electric country president for Anglophone West Africa Walid Sheta said, "We believe access to energy is a basic human right. We want homes in Nigeria to have access to reliable, safe, efficient, and sustainable energy."

Six Nigerian states are set to benefit from these plants – Gombe, Kaduna, Anambra, Delta, Osun and Niger. The upcoming systems will supply power to around 200 clients in each of the communities through a two kilometre-long 230VAC, 50Hz mini-grid electricity distribution network.

www.africanreview.com/energy-a-power

IBM pilots technology students job project

IBM Research Africa has initiated a US$60mn skills programme to improve the level of training imparted to technology and engineering students. The skills are expected to aid the students to enter the job market, and make them more competent. Working in partnership with the Kenya Education Network (KENET), IBM will beam out courses on a universal cloud in more than 50 universities and polytechnics in Kenya.

"The cloud system is hosted by Nairobi University and managed by KENET. It can be accessed free of charge by computer science, information technology and engineering students across the country," said KENET executive director Meoli Kashorda.

www.africanreview.com/ict

Guinea Bissau to build hydropower plant

The Sustainable Energy Fund for Africa (SEFA) has approved a US$965,000 grant to support the preparation of a turnkey hydropower plant in Saltinho, Guinea Bissau plant.

The plant is expected to have a capacity of 20MW, said AfDB. The announcement was made on the sidelines of the African Development Bank (AfDB)'s Energy Week in September 2015.

The upcoming hydropower plant will be interconnected by a transmission line to Bissau and neighbouring countries, within the framework of the regional energy programme by the Organisation for the Development of the Gambia River, which is co-financed by AfDB.

www.africanreview.com/energy-a-power

Building capacity in Africa's largest economy

The propects for infrastructure investment in Nigeria are improving rapidly, but significant challenges remain

Core structural deficiencies, infrastructure decay and under-investment in human resources, along with social deprivation highlight the paradox of Nigeria's economy and its inability to reach true commercial potential. The country expanded by 6.1 per cent in 2014, but the African Development Bank (AfDB) estimates that its expansion rates would be about two per cent higher with adequate infrastructure in place. The effects of deficiencies on businesses and peoples' lives are apparent in Africa's most populous nation.

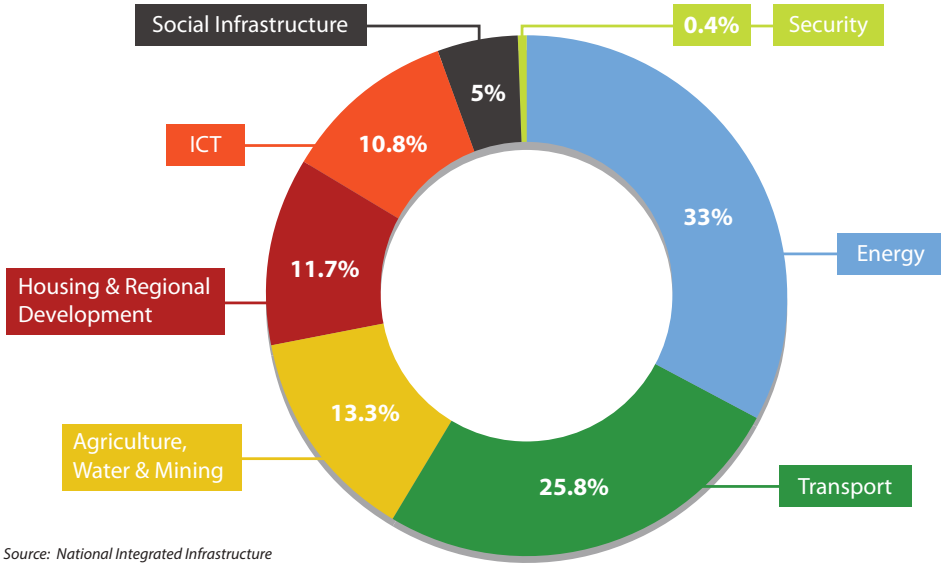
The infrastructure deficit "translates into an atrocious environment for doing business; poor quality of life; low national productivity; a very thin industrial base; and over-dependence on imported products. The population has grown… but the energy stocks have not increased since the 80s. All of these perpetuate poverty, unemployment and underdevelopment," explained local - based The Infrastructure Bank. Stanbic IBTC Bank Nigeria agreed: "In order for the economy to grow and create jobs, you need to ensure the necessary platforms, like power, roads and rail, are in place. "At the moment, those pieces are not in place, which reverberates to higher prices throughout the private sector, severely constraining efforts to drive the economy forward."

Strategic plan

President Muhammadu Buhari reiterated his commitment to infrastructure renewal: "We shall implement a national infrastructure master plan that will provide construction and related jobs across the land. Furthermore, by improving our transportation infrastructure through road, rail and port construction we expand the outer bounds of economic growth, as no economy can grow beyond the capacity of its infrastructure."

An ambitious blueprint for infrastructure development devised by the National Planning Commission, entitled the "National Integrated Infrastructure Master Plan" (NIIMP) assessed that US$3 trillion is needed during the next 30 years – half of which is expected to derive from private sources – for building, upgrading and ensuring the delivery of reliable affordable essential public services from roads/rail, to irrigation systems/water pipelines, to mobile/ broadband networks, and mass social housing and electricity.

Infrastructure Building in Nigeria



Source: National Integrated Infrastructure Master Plan (NIIMP).

> "The government's ability to fund mega-projects on its balance sheet will remain limited; the bearish outlook for oil prices only increases the challenge of sourcing alternative funding"

The energy and transport sectors will take the lion's share of funding, requiring US$1trn and US$775bn of the total, respectively, (see chart). The NIIMP seeks to raise fixed investment stock from currently 20-25 per cent of GDP to 70 per cent by 2043. It acknowledges "Nigeria's current basic infrastructure is not aligned with the country's aspiration to become one of the world's 20 largest economies by 2020. Increased maintenance and capacity expansions are needed."

A separate report by accounting and consultancy firm PwC indicated that infrastructure spending in Nigeria is projected to surge 11 per cent annually until 2025, from currently US$23bn to US$77bn – by which point Nigeria and South Africa (combined) will account for three-quarters of sub-Saharan Africa's total capital expenditure (capex). The AfDB envisaged a total of US$350bn in public and private financing for capex spending over the 2011/20 period, with another US$100bn for annual maintenance.

Closing infrastructure gap

Transportation: Many of subpar roads are heavily congested, whilst the country's 3,500-km of rail track (until recently) had ground to a halt. The construction and maintenance of Nigeria's estimated 200,000-km road network is shared between the Federal, State, and Local governments. According NIIMP, only 65,000-km of roads are paved and two-fifths of federal roads are in "poor condition". Still they account for 80 per cent of all vehicle traffic despite comprising under one-fifth of the national network – hence prone to wear and tear reported Federal Roads Maintenance Agency.

"The country's current growth rate of six to seven per cent is not sustainable without upgraded railways," argued Lazarus Angbazo, CEO of General Electric in Nigeria. "Today, the amount of freight that moves in and out of Nigeria is about 175mn metric tons. That is a lot of freight and less than one per cent of that is on rail, so you can imagine the upside for rail."

The government is channelling resources toward nationwide road/ rail rehabilitation. In the medium-term, some US$55bn is required for transport upgrades. The Federal Ministry of Works reported that approximately 180 road projects are ongoing, the largest of which are Lekki Expressway, a toll-road in Lagos; Kaima–Sokoto Road (631-km); Lagos–Kaiama Road (414km); and Lagos metro line, designed to carry 1.6mn passengers daily, which is in initial stages of construction. Building has started on six bridges for the Lagos' Eko Atlantic project, a 10-km planned district, and Badagry Expressway, section of the Trans-West African Coastal Highway linking Lagos to Dakar, Senegal.

The Ministry has also approved four public private partnership (PPP) projects: The Second Niger Bridge – financed by Nigerian Sovereign Investment Authority (NSIA) and construction co. Julius Berger; The Murtala Mohamed International Airport Expressway; The Lagos-Ibadan Road (project of national importance); and The Obajana-Kabba Road.

The Lagos-Kono modernisation scheme to re-connect the North-South train link is near completion, according to the National Railway Corporation. Construction on the Badagry Expressway also includes work on the new Lagos Mass Transit system. In late 2014, China Civil Engineering Construction Co. was awarded US$12bn contract to build the 1,402-km Lagos-Calabar railway, linking Nigeria's two major coastal cities. Feasibility studies are underway for 17 new railway developments aimed at linking major industrial, agricultural, mining, commercial and economic sites across the nation.

Electricity: The NIIMP sets demanding target for boosting generating capacity to 20 gigawatt (GW); 40GW; and ultimately 350GW, respectively, by 2018, 2020, and 2043. To help achieve future targets, some 70 licences for Independent Power Producers (IPPs) to build, own and operate (BOO) generation plants

Table1: Nigeria's General Infrastructure Ratings, (1 to 7)

	2010	2011	2012	2013	2014
Quality of Overall Infrastructure	2.42	3.03	3.23	2.98	2.67
Transportation	2.48	2.71	2.88	2.7	2.52
Aviation	4.35	4.22	3.54	3.91	
Railroad	1.45	1.58	1.89	1.81	
Road Network	2.39	2.72	2.77	2.66	
Seaport	2.98	3.31	3.55	3.44	

Source: Global Competitiveness Report 2014.

were issued by the Ministry of Power. Some of these new plants will be 'off-grid' supplying electricity directly to end-users. The outdated transmission network, including power lines and substations, also need renewal/extension – the plan is to add 6,577-km of 330 kilovolt (kV) transmission lines. Initially, Nigeria needs to invest US$23bn to increase power capacity to 20GW, with accompanying increases in transmission and distribution capacity. At present, installed generation capacity is only 7GW.

Aviation: There are plentiful investment opportunities for the construction and management of terminal buildings, runways, taxiways, aprons and helipads. The government is planning to build 13 cargo airports across the land for exporting perishable agricultural produce. The International Air Transport Association (IATA) estimated that a 10 per cent hike in air connectivity can inject US$128mn/year to Nigeria's economy and create over 17,000 jobs. The country's faster integration into global aviation network will open-up foreign markets to non-oil exports, reduce transport costs and encourage local businesses to invest and specialise in high value-added areas.

Telecoms: Despite the rapid growth of information and communication technologies (ITC) sector in the past decade, with over 140mn active telecoms subscribers in 2015, according to the Nigerian Communications Commission, ITC infrastructure stock needs considerable expansion to provide broadband access to four-fifths of the population by 2018. In short term, Nigeria plans to quadruple the number of base stations and add 10,000-km of fibre optic cables. The NIIMP inspires to build a knowledge-based economy by increasing ICT's contribution to GDP from 6.5 to 15 per cent by 2043 (increasing local software usage from negligible 0.01 per cent to one-fifth over the same period). It also aims to achieve e-government (i.e. digitising activities and services by 2033), compared with the present level of 25 per cent. Expanding broadband/internet services will absorb bulk of the NIIMP's projected ICT costs (US$325bn). It stipulates the need to spend US12.5bn/ year over next decade, though this will rise over time. The World Bank estimates that a 10 per cent surge in broadband penetration rates could yield additional GDP growth of 1.3 per cent.

Table2: Nigeria's Logistics Ratings (1 to 5)

	2010	2012	2014
Quality of Trade & Transport-related Infrastructure	2.43	2.27	2.56
Logistics Competence *	2.45	2.52	2.7

**Competence & quality of logistics services (transport operators, customer brokers).*

Source: Global Competitiveness Report 2014.

Cleaner water: The dilapidated state of water reticulation and sanitation networks – especially in northern region – need sizeable investment. The AfDB indicated that most of Nigeria's dams are underutilised, with about 73 per cent of total capacity in active use. It recommended expanding dam storage capacity to close the gap between Nigeria's 250 cubic metres per capita (cmpc) volume and 838 cmpc average for sub-Saharan Africa. Other goals put forward by AfDB included providing access to improved water and sanitation for 100 and 80 per cent, respectively, of the population by 2020. While access to clean water was reported at 64 per cent in early 2015, but sanitary waste facilities had dropped to only 28 per cent at end-2014.

Tapping diverse funding

The master plan holds high promise for efficient infrastructure services, but the availability of project finance is critical for its implementation. That in turn, is key for Nigeria becoming a vibrant/diversified economy over the medium to long-term. Potential funding sources include foreign direct investment (FDI), private finance initiatives, sovereign wealth fund, public pension assets, Islamic (Sukuks) and infrastructure bonds and public debt.

With depleting oil revenues and rising fiscal deficit, public money [alone] cannot fund mega-capital projects – hence the need for commercial risk-capital. "The private financing of infrastructure is not nice to have, it is a 'must have'. Without that, Nigeria's infrastructure investment is going to be constrained and the country will grow more slowly than it is capable of growing," noted NSIA, which is already investing in public projects.

A growing number of states now have PPP laws in place to attract private capital. The AfDB is currently establishing a PPP hub aimed at capacity building and devising a stronger legislative base for PPP initiatives. PPPs will benefit the country, the people, and attract FDI. The question is working out how to structure it to make it attractive to public/private sector and the people," commented US-based Boston Consulting Group.

In essence, the ability to fund mega-projects on the government's balance sheet will remain limited in ensuing years. The bearish outlook for oil prices only increases the challenge of sourcing alternative funding. "Beyond that, the government has been able to tap the Chinese for certain projects and is engaging a number of private sector players on the PPP level. The reality, however, is that regulatory framework to implement these PPP structure has not been fully developed," noted Stanbic IBTC Bank.

The US consultancy McKinsey Global Institute envisages Nigeria becoming top-20 economy by 2030 with a GDP of US$1.6trn driven by infrastructure building, consumer spending, manufacturing and agriculture as well as optimal development of oil/gas industry. With increased power supply and effective transportation networks, Nigeria can record 'double-digit' growth. ■

Moin Siddiqi, economist

Africa's top remittance recipient nation hosts RemitAfrica2015

Lagos is the economic capital of Nigeria, Africa's largest remittance nation. Held in Lagos early in November, the 2015 edition of the RemitAfrica conference was scheduled to bring together remittance providers and stakeholders such as money transfer operators, financial services providers, financial technology providers, vendors, agent network operators, mobile financial services providers, regulators and stakeholders from the supply and demand side of the remittance industry will be meeting at the RemitAfrica2015. Those presenting at the event include representatives of leading providers such as TransferTo, Xpressmoney, sendcashglobal, Ecobank, Ericsson, cash4africa, moneygram, Mahindracomviva, and inpay.

The formal market for international and cross border money transfer to Africa is still young and faces typical emerging markets challenges when compared to more established markets. A competitive market space is required to foster technology innovation, access and drive the expansion necessary to reduce cost and reach underserved areas. A recent report by the World Bank indicates the growth of remittances to Sub-Saharan Africa is set to slow to 0.9 per cent in 2015, amounting to US$33bn. Globally, it is expected to reach US$586bn in 2015, though at a slower growth rate of 0.4 per cent due to economic conditions and is expected to accelerate again to reach an estimated US$636bn in 2017.

Is issuing debt instruments viable?

Post the 2008 global financial crisis, bank funding has become more difficult to obtain. As a result, African governments, who desperately need to grow their economies in order to alleviate large scale poverty in their countries, are turning more and more to domestic central government marketable debt instruments and sovereign debt as an alternative method of funding their domestic development requirements.

Infrastructure and the ability to provide electricity are major inhibitors to growth in most African countries and the lure of government marketable debt and sovereign debt as a method of funding capital intensive infrastructure projects is very strong. The five largest economies in Africa, namely Nigeria, South Africa, Egypt, Morocco and Kenya are all restrained, to some extent, by poor infrastructure, including their ability to provide electricity. Based on the World Bank 2015 Ease of Doing Business Survey, the ability of these five countries to provide electricity (calculated using the formula 1-(relevant countries rating per the Survey / the total number of participants in the Survey) is as follows: Nigeria one per cent, South Africa 16 per cent, Egypt 44 per cent, Morocco 52 per cent and Kenya 20 per cent. Similarly, the extent that infrastructure deters investment in these same five countries, according to the participants in the Frasier Institute Annual Survey of Mining Companies 2014 is as follows: Nigeria 89 per cent, South Africa 43 per cent, Egypt 45 per cent, Morocco 31 per cent and Kenya 38 per cent.

The attractiveness of using Government Marketable Debt and sovereign debt is compounded by the numerous publications and research documents promoting the usefulness of these instruments as a viable method of funding for African governments. In considering whether the assumption of additional government debt is really an option, African governments need to carefully consider a number of factors, including most importantly their existing debt position on a holistic basis. The published debt figures for the countries of the world tend to be split up into total domestic government debt and sovereign debt with the result that each governments' total indebtedness is not that easy to establish. Total domestic government debt for African countries has generally increased between 2013 and 2014. The five African countries with the highest levels of total domestic government debt as a percentage of gross domestic product (GDP) for 2014 are Zimbabwe at 181 per cent, Egypt at 94 per cent, Morocco at 77 per cent, Ghana at 73 per cent and Mauritius at 61 per cent. Kenya at 59 per cent and Mozambique and South Africa at 47 per cent each are also among the more indebted African countries. If the sovereign debt owing by African countries is brought into the equation, the total debt position for certain countries becomes fairly concerning, particularly against the current backdrop of declining global mineral prices, declining global foreign direct investment (FDI), inadequate energy supplies, lower growth rates and weaker exchange rates.

Robbie Cheadle, associate director, deal advisory and capital markets, KPMG; John Geel, managing partner, deal advisory, KPMG

Back to basics for food security

The development of the Nigerian agricultural economy, and what the key opportunities are for the future

Nigeria's agricultural sector has gone through different cycles over the decades. In the early 1960s before the oil boom it was the major contributor to the country's GDP. It was also a major employer and foreign exchange earner. But the discovery of oil in 1970s saw a dramatic shift from agriculture to an oil based economy, thereby making the sector less attractive.

Driven by abundant petrodollars, the Nigerian economy moved from that of food reliance to food import reliance. The trend has been going on for more than four decades. By the end of 2014, Nigeria was spending at least US$2.6bn on rice import alone. With the hard reality of global oil prices falling below US$50 a barrel and a slowing economy in 2015, Nigeria' s newly elected government of President Muhammadu Buhari recently decided to ban rice import and 47 other items including chicken, eggs, palm oil and dairy products. The government hopes this will help jumpstart the country's moribund agricultural sector which has relied on small scale farming that still accounted for nearly 40 per cent of the GDP.

Continuing challenges

However, plans to become self-reliant in food security again face new challenges and could take longer than anticipated. The lack of infrastructure in the most agriculturally productive areas and ethno-religious conflicts could break out as land value spikes and communities jostle for ownership.

Banks in the country also need to refocus their lending strategies to include famers in their portfolios. A few banks are already involved but to a lesser extent than expected. Making loans available to farmers at lower interest rates and flexible repayment periods is likely to take longer unless the government itself become fully involved.

The ravages of the Boko Haram insurgency in the northeast of the country which has displaced more than 2.1mn people and destroyed infrastructure and farms, also causes concern for the food security situation in the region and the country. The region provides nearly 45 per cent of the entire country's food consumption. The disruption by Boko Haram of farming activities has increased food prices in the country. Experts say that the recovery of the region to its earlier productive potential could take several years.

Nigeria's food security challenges will also stem from its rapidly increasing population and lower food production that cannot cope with it. Hence, expanding agricultural industry must be the government's priority.

The potential opportunities

No matter how tragic the food security situation in the country may seem in short and long terms, Nigeria has abundant land and sufficient water that can be used for irrigation to turn around agricultural production within a short time to counter any potential threat to food security. Only 32mn ha out of the 79mn ha of arable land is presently in use. The farms are 90 per cent rain fed.

Surprisingly, despite the challenges and lack of clear government policy on agriculture, the country has managed to produce just enough to cater for its needs to keep it out of a potentially explosive situation. Most experts are now asking when the country will be able to produce enough food to be able absorb any economic and security shocks.

Currently, Nigeria has some significant agricultural production. The country is the world's largest producer of cassava (54mn metric tonnes), dry cow pea (2.5mn metric tonnes) kolanuts (138,000 metric tonnes) sorghum (6.90mn metric tonnes) cocoyam (3.45mn metric tonnes) and yam (38mn metric tonnes). Other crops produced in the country include cocoa, cashew nuts, palm kernels, maize, peanuts, fresh vegetables and rice. At 4.833mn metric tonnes, Nigeria is the 17th largest rice producer in the world. The country's present agricultural output could easily place any smaller African economy on the top of the list of countries in terms of food stability. And this is despite its potential being under-utilised. For example, rice and sugar imports account for 95 per cent of what is consumed in the country. This offers a huge potential for the development of rice and sugar production sector.

Until the recent ban, Nigeria spent a significant amount of money on imports of chicken and even fish. Wastage and lack of value-added chains have also hindered growth in agricultural sector. For example, tomatoes grown in Nigeria are usually exported to Italy and then imported back as tomato paste, which is sold at a high price.

Nigeria is blessed with an abundant work force. Out of its 170mn people, nearly 75 per cent are youths. The large population also offers a readily available market and a consumer base which is absent in many African countries. And there is a strong potential in the country's livestock sector. Large scale ranching and dairy farming are still in their infancy, with just a few individuals and companies involved in it. Developing this sector would see a correlated growth in the animal feeds industry, leather processing factories and other associated industries. Moreover, the long neglected rubber industry, which at one time supplied nearly 70 per cent of raw material used in the country by tyre companies Dunlop and Michelin, also offers opportunity.

The new Buhari administration appears determined to grow the agricultural sector despite the challenges that lay ahead. Nigeria has recorded a robust growth rate of 2.55 per cent and seen rising income levels and an expanding manufacturing sector. With a growing population which is expected to hit the 200mn people mark by 2020, the demand for agricultural products in the country can only show an upward trend. ■

Hannington Osodo

Cash flow concerns in the cashew industry

There is serious debate surrounding investment and management of nut production in Ghana

Ghana's cashew industry, seen as an alternative to cocoa, the country's largest foreign exchange earner, is in crisis as majority of the local processors have shut down operations due to many challenges, chiefly the lack of raw cashew nuts (RCN) and the current energy crisis.

According to the processors, other challenges are the high cost of credit and the inefficient processing methods they employ.

Of the 12 cashew processors located in the Brong Ahafo Region, the production hub, only one, Mim Cashew Nuts Limited is operating. Raymond Taylor, managing director of Kona Agro Processing Limited at Awisa near Wenchi, admitted that business has become uncompetitive, forcing his company to suspend operations this year.

He attributed the lack of RCN to insufficient local production and the 2013 ban by Cote d'Ivoire on the export of cashew nuts to Ghana through the land route between the neighbouring countries.

Limiting land movement

Ivorians say that the ban restricting movement of RCN through land borders was instituted to improve monitoring of the nut's trade and maximize tax revenues.

Complying with the ban raises Ghanaian cashew processing costs and export profitability. It also negatively affects the economic fortunes of residents on the stretch of the border between the two countries for whom cashew trade provides considerable income. Potential investors who would have set up new cashew processing businesses in the Brong Ahafo Region on the basis of adequate availability of RCN are discouraged to invest.

The Ghana Cashew Industry Association (GCIA) has petitioned the government to intervene and convince the Ivorian authorities to allow at least 100,000 tonnes of RCN to be imported through the land border.

Industry capacity

Ghanaian exporters and processors trade around 150,000-200,000 metric tonnes (mt) annually and rely heavily on RCN from Cote d'Ivoire, Burkina Faso and Togo to supplement local production, estimated at about 65,000 mt annually. Ghana can potentially increase annual production to 200,000 mt, valued at about US$400mn.

Total cashew processing capacity in Ghana is more than 27,000 tonnes, while the national annual export target is 150,000 tonnes.

Despite the government's repeated expressions of willingness and commitment to bolster processing and value addition in the cashew value chain, the production environment suffers from electricity and water shortages, as well as lack of finance.

Research has indicated that 40,000MT of RCN processed in Ghana creates 8,000 jobs in the production areas resulting in a combined monthly income of US$685,000 to the workers who are mostly women. Export of the produce at US$900/mt will result in revenue of US$36,000,000. Processing 40,000MT of cashew will also yield approximately 9,000MT of kernel which at US$7,000/MT brings extra import revenue of US$63,000,000 resulting in approximately US$8.2mn being paid as wages into the rural economy yearly.

Ghana with its proximity to both the European and US markets and with the increasing requirement for traceability in the food supply chain stands to gain substantially from the trade as most buyers are reaching out to West Africa to source cashew kernels directly. The distance travelled is shorter and the carbon footprint is much smaller.

Others have blamed the local processors for not adopting new technologies as Vietnam has done by lessening both time and effort for processing including 'shelling', which has been automated thereby reducing the adverse effects of cashew nut shell liquid (CNSL) on workers' hands.

Winfred Osei Owusu, president of GCIA, said that processing plants were located strategically in major producing towns in the Brong Ahafo Region. "We did this because of the proximity to supply sources as well as importing through the borders with Cote d'Ivoire and Burkina Faso to supplement local production; and so if we have to import through the sea ports, our cost will increase because we will have to transport the nuts by road," he said.

Income issues

To stem this problem, the processors in recent times have advocated an outright ban on export of RCN as one of the "necessary interventions" needed to salvage the processing industry from total collapse.

The farmers have however rejected it saying it will give processors an undue advantage to dictate prices to the farmers' detriment. "The current keen competition in the purchase of RCN presents a fair opportunity for us farmers to make our desired profit," Anthony Kwaku Adu, national president of the Cashew Farmers Association, said describing the processors' suggestion as an attempt to suppress their income.

Meanwhile, sector operators have for the first time agreed on GH¢2.70 (about US$0.70) per kilogram as the starting price for the RCN in the 2015 cashew season.

Data from the Ghana Export Promotion Authority (GEPA) indicates that the crop generated about US$170m in foreign exchange in 2013, making it the second-largest contributor to the non-traditional exports sector.

Currently, she produces 65,000mt of cashew annually but has the potential to increase production up to 200,000mt yearly with a value of about US$400mn. ■

Kafui Gale-Zoyiku

Equipping Maputo's transport operators

A new automotive franchise in Mozambique transforms prospects for both passenger carriers and logistics opeations

Entrepreneur, engineer, aviator and owner of MAN's Swaziland dealership, Ernest Da Cruz, recently expanded MAN Truck & Bus' Sub-Equatorial Africa dealer footprint by building a sophisticated sales and service dealership in Matola, just outside Mozambique's capital city, Maputo. The new facility, built from the ground up on a 15,000 sqm property at an initial cost of US$2.14mn, boasts a 1,200 sqm workshop, a 400 sqm parts department and 600 sqm of office space. The workshop includes three service bays, eight repair bays and one wash bay.

The new MAN dealership, Matola Truck & Bus Mozambique (Photo: MAN Mozambique)

Extending a network

At the official roof-wetting ceremony of Matola Truck & Bus Mozambique held in mid-September 2015, Da Cruz and his staff members hosted MAN customers from Mozambique, whom he has been servicing from his Swaziland MAN dealership for over 20 years, as well as executives from MAN Sub-Equatorial Africa Region, MAN Truck & Bus SA, MAN TopUsed and members of the media. He said, "Today's event goes beyond the basic task of establishing an automotive franchise. This new dealership is not just another outlet for selling trucks and buses, but represents a step towards establishing an infrastructure capable of supporting the immensely competitive transport industry in the region and to make it an essential partner in the development of the beautiful country of Mozambique."

The new dealership is equipped with the latest hi-tech workshop and parts inventory management systems, including a computerised oil dispensing system, a five-tonne crane and a powerful server running cutting-edge inventory management software which links the Matola parts warehouse with Da Cruz's Swaziland MAN dealership.

Da Cruz said, "Our vision is to manage cost-effective business processes with minimum risks with appropriate approval by our management system ensuring market competitiveness by supplying products and services of the highest standards, on time and within budget."

High performance

Mozambique is currently one of Africa's star economic performers with annual GDP growth between six and seven percent. "The absence of any significant rail networks from South Africa and other neighbouring countries to Mozambique make truck transport the predominant logistics provider on the sub-continent and this new dealership, which is perfectly located alongside the N4-Maputo corridor, will become an invaluable service and support centre for long-haul trucks running from Gauteng to Maputo and other ports in Mozambique," said Thomas Ferreira, head of export after-sales, MAN Sub-Equatorial Africa.

Coca Cola Mozambique is one of Da Cruz's premier customers. Leonell Amaral, the beverage manufacturer's national fleet manager, said, "Having a world-class MAN service dealership on our doorstep will bring new efficiencies to our fleet of six MAN TGS 27.440 truck-tractors. Ernest's dedication to his customers is exemplary and the quality of his technicians' workmanship is attested to in the performance of our MAN trucks, which outperform their counterparts in our fleet as far as fuel consumption is concerned by an impressive margin."

Matola Truck & Bus' order book also suggests a swift return on investment for Da Cruz, stated MAN's Robert Clough, acting head of Sub-Equatorial Africa.

Da Cruz said, "Despite the slowdown in the global economy these last few years, especially in the automotive industry, we have tried to maintain and create an environment where employees are able to realise their true potential and maximise their performance, thus enabling the company to be the employer of choice in our industry." ■

Critical partners in commercial insurance

Why brokers play a critical role in developing Africa's emerging financial business channels

With tough market conditions providing so little opportunity for growth, commercial insurers are starting to focus on brokers at the more profitable end of the market, either through niche products, or by working with regional community brokers who typically know their clients better, resulting in stickier, more profitable business.

"Commercial insurance can be highly complex because it needs to be more specific and tailored to the individual needs of businesses," said Clinton Brown, business development manager at SSP. "As a result, brokers are far more crucial partners for insurers in the commercial space than the personal one," explained Brown, referring to a recent SSP white paper, 'Where next on the distribution journey?'.

Other insurers are looking at accessing emerging opportunities through UMAs (Underwriting Managing Agents) which have increased in popularity in the recent soft market conditions. The majority of UMAs focus on commercial insurance, and their smaller size and often specialist nature make them more agile and responsive to the broker channel. According to Brown, UMAs enable insurers to access products or services that the insurer would not be able to provide themselves. He said, "This is especially true in terms of niche lines, where the cost of developing specific underwriting experience could otherwise be prohibitive."

> **"Commercial insurance can be highly complex because it needs to be more specific and tailored to the individual needs of businesses. As a result, brokers are far more crucial partners for insurers in the commercial space than the personal one."**
>
> **- Clinton Brown, business development manager at SSP**

Costs and strategies

Alternatively, insurers may be looking to provide access through a greater number of brokers, but at a lower cost, through the networks and strategic partners underpinned by a technology solution. "Networks play a key role in the distribution of commercial insurance, providing value for both insurers and brokers alike. However," Brown cautioned. "insurers must work with a network or strategic partner that is easy to do business with and which offers the most value to their business in terms of greater efficiency, cutting costs and driving profits, rather than simply providing an aggregation of brokers."

While brokers are the dominant distribution channel in the commercial space, they start to lose market share when it comes to SMEs and micro-SMEs, as business owners look to repeat their personal lines purchasing experience in the online space.

"Customers are open to using different channels concurrently or along the buying cycle, which means the industry needs to provide a seamless experience and recognise which channels a particular customer chooses to use. In the UK, for example, we are seeing a change in the way business owners purchase insurance, with a 35% increase in direct channel usage and a 22 per cent increase in those who purchase their insurance online," said Brown.

Stay or change

According to the white paper, while 51 per cent of SMEs are still using brokers for their commercial insurance needs, 28 per cent are likely to change channel at their next renewal date, with over half of microenterprises set to use aggregators.

"All of these factors are leading to a more digital commercial landscape, which mirrors the transformation that is taking the personal lines world by storm," said Brown. "We're seeing different buying behaviours from consumers who are more aware of the need for cost-effectiveness coupled with transparency, ease of doing business and faster turnaround."

While this increased digitisation of the SME commercial market can be perceived as a threat, there are immense opportunities for insurers who can adopt a flexible, agile and simple approach to meet these demands from the new generation of purchasers. However, Brown advises insurers not to simply duplicate their existing business processes online. "Instead they need to deliver differentiated customer experiences and engagement by developing a well-thought-out, omni-channel approach for each segment that puts the customer at the heart of everything they do," said Brown.

With access to such a large number of successful brokers, commercial insurers can make the most of this dominant method of distribution while examining how they can exploit emerging channels such as digital. The challenge for insurers and brokers is to develop and implement a strategy that explores both the broker and digital distribution channels and enables them to realise their growth ambitions. ■

Innovative information exchanges

The management of data centres loads is evolving as rapidly as the connectivity scenarios they serve

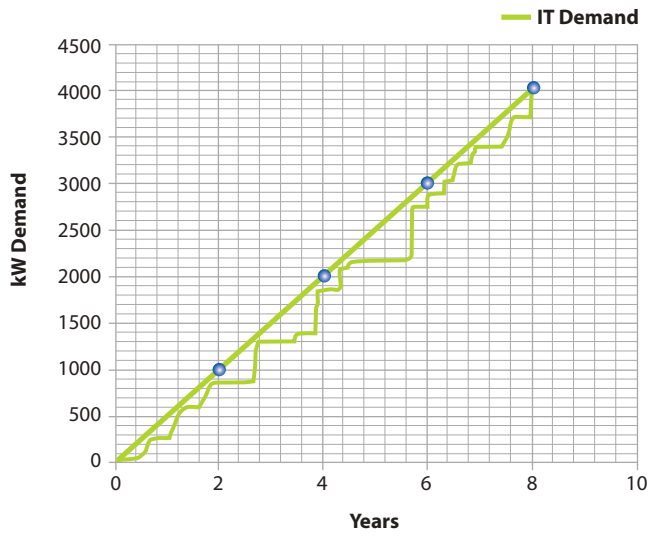
Demands on data centres continue to rise everywhere, serving an increasing number of industrial operations around the continent. Not only do these facilities need to meet security, energy efficiency, business continuity and productivity optimisation needs, but they also have to accommodate the unpredictable future loads on the facilities.

Pete Greaves, Aurecon's expertise leader for data & ICT facilities and Matt Gurr, associate engineer, recently discussed how the loads on data centres have steadily increased over the years and the way data centres were designed in the past is not necessarily conducive to meeting our current and future expansion needs.

"Ten years ago, we were designing data centres for an average electrical load of 500 kilowatts per square metre. Increased technology, IT demands and smartphones have caused this load to rise, so we are now designing for 1 200 kilowatts per square metre," said Greaves.

The data dilemma

The dilemma that many data centre owners and operators face with catering for an anticipated increase in loads is that it leads to stranded plants (i.e. wasted infrastructure and underutilised equipment). Technology, as well as systems and services upgrades, leads to data centre owners investing capital in equipment that is not needed for several years down the line and this low usage equipment needs to be maintained, adding to the expenses.



Globally, increased technology, IT demands and smartphones have led to a rise in the electrical load demands of data centres (Source: Aurecon)

"Besides the high costs for the equipment that was purchased and maintained, stranded plants are also often characterised by equipment that runs inefficiently, which leads to wasted electricity, rising power costs and it also impacts a data centre's sustainability targets," said Greaves.

Currently, existing legacy data centres go through the life cycle of upgrading systems such as Uninterrupted Power Supply (UPS), generators, incoming supplies and generators before they are faced with hard limitations such as space constraints, structural limitations and site power constraints, which lead them to quickly run out of space. In order to expand, many data centre owners make the business decision of building a new facility to overcome these limitations.

Staged growth

A staged growth approach, argues Greaves, is a more economical approach to manage a data centre's current needs as well as plan and expand according to future needs.

"Staged growth, as opposed to a full istall, offers numerous benefits. There's greater visibility of capital expenditure needs and lower capital costs, as well as a lower total cost since less is spent on maintenance," said Gurr.

Even when planning for future load requirements, however, most data centre designers can still only make educated guesses regarding what the real operational growth will be, and so it is essential to consider strategies to manage assets better and differently.

"Even a staged approach could lead to stranded assets. The problem with underutilised assets, or assets that are not used at all, is that it is usually only detected when the data centre is already in operation, making it a difficult problem to rectify. Planning your staging can help you avoid stranded assets at the design phase instead of when the data centre is operating, which can lead to significant savings," said Greaves.

Technology selection, site location, the appointment of specialist architects and engineers, as well as planning applications, are only a few of the aspects that need in-depth consideration to build data centres for future processes. To avoid stranded assets, data centre owners also need to plan for flexibility.

"When developing detailed upgrade strategies to enable modular plant expansions and provide plant expansion spaces to be added, it's important not to skimp on building space during the design phase. Another way to plan for flexibility is to include different density zones in the site plan and provide flexibility in white space zones. Also consider all systems and services during the planning and ensure expansion capability is adequately designed with interfaces and connections," concludes Gurr. ■

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The conference highlights improvements to railway stations (Photo: Roman Vukolov/Shutterstock)

The next station at Marrakech

Looking back at the 2015 International Conference on Railway Stations, held for the first time on the African continent in Morocco

Following successful editions held in Rome (2005), Paris (2007), Brussels (2011) and Moscow (2013), the 5th Next Station 2015 International Conference on Railway Stations took place for the first time on the African continent in Marrakech, Morocco, on 21 and 22 October 2015. This high-profile global railway event on the themes of station development and operations will be hosted by Moroccan Railways (ONCF) and jointly organised with the International Union of Railways (UIC).

Since 2005, several thousand decision-makers from higher railway management and the transport world, economy and finance, banks, business and trade, architecture and urban planning, have actively participated in the debates and exchanges organised as part of the Next Station conference.

Rethinking intermobility

Next Station was dedicated to the theme *Rethinking Stations for Future Intermobility.* This international event will provide a unique opportunity for high-level speakers and panellists to address all strategic issues related to the creation, development and operation of railway stations, such as project development and financing, station management, station and urban planning, the eco-friendly railway station, facilities and design, commercial use of station space and services, multimodality and accessibility.

Following its four previous editions, Next Station has become a benchmark event, a privileged venue for sharing information and experience on the development and operation of stations across the world. Developing a new generation of railway stations that meet the needs of mobility and society – whilst respecting the aims of sustainable development – is a strategic goal for all UIC member railway companies.

The Next Station programme will include two plenary sessions, eight parallel sessions, a professional trade fair open to all partners and suppliers from the station sector, and a programme of technical and cultural visits. The conference was held in the Palmeraie Resorts of

ONCF receives its second high speed train

Following the delivery of the first high-speed train in June 2015, Office National des Chemins de Fer du Maroc (ONCF) received its second high speed train on in September at the Port of Tangier Med. ONCF is acquiring 12 high speed trainsets in total to be used on Tangier-Casablanca services.

The transfer of this train to the Tangier maintenance workshop took place in a number of special convoys carrying locomotives, coaches, carrying bogies and accessories. The assembly of all these components will begin immediately after the arrival at the workshop.

In accordance with the acquisition process of these trains, the coaches undergo a series of static and dynamic tests, audits and updates. The high speed train initially ran on the existing conventional rail network and then rolled out on the high speed line before starting commercial operations.

Marrakech, which features a congress centre and two hotels – the Palmeraie Palace and the Golf hotel.

For the 2015 edition, the Next Station Honorary Committee includes

- Abdel Aziz Rabbah, Minister of Equipment and Transport, Kingdom of Morocco
- Paulette Mengue M'Owono, Minister of Transport, Republic of Gabon
- Gaoussou Toure, Ministry of Transports, Republic of Ivory Coast
- Mamadou Hachim KOUMARE, Minister of Equipement, Transports , republic of Mali
- Mansour Elimane KANE, Minister of Infrastructure, Land Transports , republic of Senegal
- Abdeslim Bekrate, Walli of the Marrakech Area
- Mohammed Rabie Khlie, Director-General, ONCF, Chairman of UIC African Region
- Vladimir Yakunin, President JSC Russian Railways RZD, UIC Chairman
- Michele Marco Elia, CEO of Italian Railways FS Italiane, UIC Vice Chairman, Chairman of UIC Europe
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- Ömer Yildiz, President and CEO, Turkish State Railways TCDD, Chairman of UIC Middle-East Region
- Mohammad Khalid Al Suwaiket, President, Saudi Railways Organization SRO, UIC Middle-East Vice Chairman
- Guilherme Quintella, Brazil, Chairman of UIC Latin American Region

Technical details

One of the highlights of the event was a technical visit to to Casa-Port station in Marrakech. Casa-Port represents the culmination of an infrastructure project squarely focused on sustainable mobility.

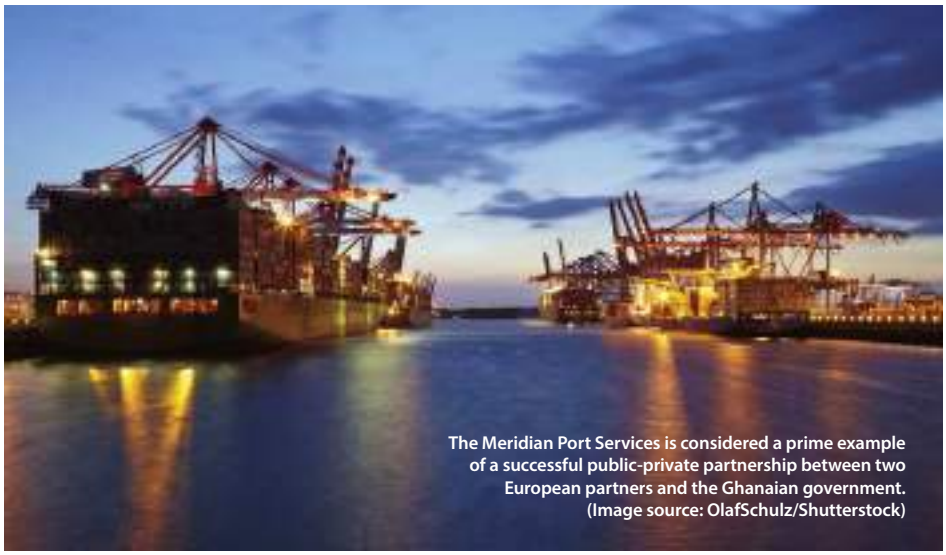
Following on from the new generation of railway complexes that have been built in Marrakech, Fez, Tangiers and elsewhere, and designed according to the concept of creating intelligent, multi-purpose living spaces, Casa-Port station has moved onto a new level through the sheer scale of this major project. It is fully embedded in the new layout of the urban area around the station, at the hub of the major routes within the city and adjacent to the city's harbour, the new marina and the Hassan II Great Mosque. The idea behind this new construction is to renovate and modernise the station and provide integrated services to users (retail and leisure areas), developing intermodal links and improving commercial transport services to and from Casablanca. The project is the answer to increasing passenger volumes, growing commuter journeys to and from work and enhancing property value of the station by creating a tertiary shopping centre. ■

Twelve high-speed trains will be deployed on the Tangiers-Casablanca route. (Image source: Ortodox/Shutterstock)

Partners in Ghanaian port expansion

The deep water development project underway in Tema, with the backing of a US$1.5bn financing by joint venture

Meridian Port Services, a joint venture between Bolloré Africa Logistics, APM Terminals, and the Ghana Ports and Harbour Authority, is developing a deep-water 3.5mmn TEU port and logistics hub in Ghana to accommodate larger vessels and West African trade growth. A US$1.5bn plan to expand the Port of Tema into a new West African regional port and logistics hub was set into motion with a formal signing ceremony held today by Ghanaian President John Dramani Mahamathe.



The Meridian Port Services is considered a prime example of a successful public-private partnership between two European partners and the Ghanaian government. (Image source: OlafSchulz/Shutterstock)

World-class infrastructure

Meridian Port Services (MPS), a joint venture of APM Terminals, Bolloré Africa Logistics and Ghana Ports and Harbours Authority (GPHA) – which operates the container terminal in Tema Port – will develop four deep-water berths, a new breakwater and an access channel able to accommodate the world's largest container ships, providing a world-class port infrastructure to support the country's economic growth. This will add 3.5mn TEUs in annual throughput capacity. More than 5,000 jobs will be created as a result of this project.

The expansion project includes plans for the potential construction of additional terminal facilities, including bulk, liquid bulk and general cargo terminals, as global trade with Africa continues to accelerate.

"We are excited about how this port will contribute to Ghana's future economy. Increased access to global markets is a key component of Africa's ongoing economic growth, and the new, world-class port development which begins here today will help to put Ghana, and all of West Africa at the forefront of African global trade," stated APM Terminals CEO Kim Fejfer.

"MPS is the quintessential example of a successful public-private venture between two European partners and the government of Ghana. By virtue of this project, along with the trust we place in Ghana's emerging economy, we extend our commitment through a major project that will help bridge Ghana's economy to the outside world under the most favourable conditions," said Phlippe Labonne, CEO of Bolloré Africa Logistics.

Improving access

In a separate project, APM Terminals and Bolloré Africa Logistics will upgrade the current highway between Accra and Tema to a six-lane modern highway along with improved connecting roads and access point to enhance the movement of cargoes into and out of the port of Tema and the hinterland.

In November 2014, an initial MoU was signed by MPS and the GPHA for the expansion plans. During the past five months, MPS and the Ghanaian government representatives completed contractual details, and finalised preparations for the project's required design and engineering studies. The joint venture share is comprised of Bolloré (35 per cent); APM Terminals (35 per cent); and Ghana Ports & Harbours Authority 30 per cent.

"This massive investment highlights the confidence of investors into the country. It is a sign that Ghana is moving in the right direction and the journey will not end there. Expanding the port using superior infrastructure and modern, advanced technology will allow Ghanaian companies to compete for business in the most cost effective way," said MPS CEO Mohamed Samara.

Port projections

The International Monetary Fund has projected an annual economic growth rate of 4.5 per cent for Sub-Saharan Africa in 2015, and 5.1 per cent in 2016, following a five per cent GDP expansion in 2014. The IMF has projected Ghana's economy to expand by 3.5 per cent in 2015 and by 6.4 per cent in 2016. Container ship industry analysts have estimated overall African containerised cargo handling to have increased by 7.2 per cent in 2014, as compared with an overall global growth rate of 5.4 per cent. African port container volumes are forecast to continue to increase well above the global market. Container throughput at MPS was 651,000 TEUs in 2014. ■

Taking strides into Nigeria

MAN Diesel & Turbo has opened a new office in Lagos, following which CEO Uwe Lauber talks about the high potential in the Nigerian market

MAN Diesel & Turbo has opened a new office in Lagos, Nigeria in a bid to deepen local footprint in Africa and strengthen its association with Nigeria. Adedayo Olowoniyi, former chief financial officer for the sub-Saharan region, will be leading the Lagos office, said the company. MAN's expansion plans in Nigeria follows the success of business interests in Mali, Senegal, South Africa, Kenya, Angola and Namibia. Company CEO Uwe Lauber said, "We have been doing business in Nigeria for a long time. Now, we have become a resident in one of Africa's economically most powerful cities."

According to Olowoniyi, the privatisation of the local power market is driving investment and with only about 5.5GW installed today, there is a substantial need for additional decentralised generation capacity. With substantial growth in the economy, MAN Turbo & Diesel is confident their products can help companies to secure their energy supply without having to depend on the public grid. Martin Kalter, senior vice-president of MAN Diesel & Turbo said, "Like in the rest of the world, natural gas is on the rise. Our gas-, dual-fuel engines and gas turbines are an excellent fit for gas-rich regions where the infrastructure for distribution is already in place or developing such as parts of Nigeria. In more remote areas and for industrial and mining companies, our diesel engines are the right choice."

MDT is engaged in various fields of business, ranging from power generation to turbo machinery for the oil & gas industry and marine propulsion. For which segment do you see the biggest opportunities in Nigeria?

Nigeria already is an important market for our turbomachinery business, where we are working together with the oil and gas and process industry on a number of projects. Also we have more than 60 engines installed for energy generation in the country and this is where we see the most substantial growth potential. Our smaller scaled distributed energy solutions enable companies to generate electricity without depending on the public grid. On a larger scale we build gas and dual fuel power plants of up to 200MW, which can feed into the grid and help to prevent energy shortages in the first place. Finally Nigeria has a developing shipbuilding industry, which we are watching closely. As one of the world's leading providers of ship engines we want to be well positioned by the time this market takes off.

Uwe Lauber, CEO of MAN Turbo & Diesel

Nigeria has recently elected a new government. From an industry point of view, which are the most pressing matters that need to be addressed?

From what I understand, a lot of hopes and aspirations are connected to the election of Mr. Buhari and I wish him the best of luck for the challenges ahead. Running a country that inhabits 160mn people and is rich of history and many different cultures is not an easy task and I am far from giving advice here. Yet in my eyes the energy shortages are among the most pressing challenges. A stable energy supply is the backbone of any evolving economy and sustainable growth cannot happen without it. According to the World Bank, power cuts in Nigeria slow down the annual growth by an average of 3-4 percent. To leverage this lost growth potential would be beneficial to the whole country.

Which solutions do you see for the country's energy challenge?

Distributed energy solutions based on gas or dual fuel engines are a good fit for Nigeria. They can feed into the grid or operate in captive mode, can easily handle fast load changes and ramp ups and are very efficient. Our latest generation of two stage gas engines offers a mechanical efficiency of more than 50 percent and reaches full power in less than three minutes. This technology is also suited perfectly to back up renewable energy generation. There is a great MAN Diesel & Turbo SE 2 potential for hybrid solutions, which combine solar or wind power and an engine. Whenever the sun does not shine or the wind does not blow, the engine takes over.

What are your further plans in Nigeria? Are you planning to open additional offices?

As a next step we are considering to open up a local service workshop. Our market leading service offering is an essential element of the MAN brand experience and of course a strong selling point with regards to any new business we will be creating in Nigeria. And since we already have a substantial installed local base, this is worth looking into.

Last year you have acquired a small engineering company in South Africa. Is M&A something you are looking into with regards to the Nigerian market as well?

We are not on a shopping tour, but follow a concept we like to call "intelligent growth". That means acquisitions are definitely part of our playbook and Nigeria is not excluded here. It also means however, that we are placing very high demands on the strict commercial logic of any possible transaction. We look at M&A as a tool to help us open up new fields of technology, sales markets or supply chains. If that is the case, we may be interested. But we will always stay a lean and flexible player in the market. Customer proximity and a fast market response allow us to counteract the size of some of our competitors. ■

West Africa advances its aviation industry

The integration of regional routes to feed international destinations with code shares through air transport hubs

With just one exception, that being the Nigerian airline Arik Air, West Africa's airlines have withdrawn from serving international routes and focused on building up regional networks. Even Arik Air has adopted a similar policy, serving international routes through Lagos with extensive domestic and regional routes.

As well as Lagos, three other aviation hubs have been developing in West Africa – at Accra (Ghana), Abidjan (Cote d'Ivoire) and Lomé (Togo). The opening of the new Dakar airport will probably see Senegal's capital join the scramble to become a primary air hub.

New international transatlantic services are flying from Accra and Abidjan, and Lomé is the home to Asky Airlines, one of the largest regional networks connecting much of West and Central Africa. In a code share agreement with Ethiopia Airways, it served Brazil for the Fifa World Cup.

On a recent visit to Ghana, African Review spoke to representatives of two of the players; Asky's Ghana country manager Worlanyo Afadzinu; and Ghana's African World Airlines' chief operations officer, Apilgy Afenu.

Currently, Asky (40 per cent owned by Ethiopian Airlines) operates a network through its base in Lomé, Togo. Afenu told African Review that the West African Ebola outbreak had necessitated the airline suspending three destinations, (Liberia, Sierra Leone and Guinea Conakry), although services have resumed to Guinea Conakry.

However, the fleet that Asky operates – four Dash 8s and three Boeing737s are kept very busy. Asky currently operates over 150 flights and cover 22 cities in 19 countries across West and Central Africa. According to Afadzinu, 70 per cent of their passengers are traveling on business.

In August 2015 the carrier announced a new schedule aimed at meeting the demand for more flights in the region adding to already existing flights from its hub at Lomé to Abidjan, to 10 weekly flights, and increasing to nine the weekly flights to Libreville, Gabon.

Worlanyo Afadzinu, Asky Airlines Ghana country manager

Fresh opportunities

The new schedule also covers daily services to other West African capitals including Lagos, Dakar, Accra, Niamey; and Douala – Cameroon's commercial hub and Asky's busiest route. But with the ending of the Fifa World Cup, Ethiopia and Asky have halted their code-share flights across the Atlantic to Brazil, when load levels were high at around 90 per cent.

"Some passengers were traveling for the World Cup, others just to the South America region. Of those, the majority were business travelers," Afadzinu said - but adding that Brazil's entry requirements in terms of visas and demonstrating financial means did raise problems for some African passengers.

However, Afadzinu thinks it "most likely" the service will be reinstated. He said, "We need to review the flight operations, how valuable it was in terms of revenues. We need to look at the cost analysis of it, and if it is OK and the demand is there, why not?"

Quite evidently, the Rio Olympics in 2016 might serve as a fresh opportunity to reinstate Lomé to Brazil flights once more.

Asky is evidently very proud that it carries, on average, 10,000 passengers each week and it has already flown over two million passengers.

Afadzinu believes that because the airline carries mainly business passengers, it makes flight punctuality critically important. "We need to be on time, and provide the service that our passengers require," he says. "And we make connectivity very easy," he adds, outlining the short connection times at Lomé.

"We pride ourselves in having the youngest fleet within the region. We now have three Boeing aircraft, and four Dash 8."

With the Dash 8, Asky has modified the cabin specification to alter the original configuration to offer a business class cabin.

A more recent entry to the West Africa regional aviation sector has been Africa World Airlines (AWA). AWA is an initiative of the Ghanaian entrepreneur Togbe Afede XIV, in a joint venture between China's HNA Group, the largest of AWA's shareholders and parent company of the fourth largest airline in China, Hainan Airlines; the Chinese Africa Development Fund; and two Ghanaian investors, the local brokerage company Strategic African Securities, and the Ghanaian Social Security and National Insurance Trust, the state's pension fund.

It began operations less than three years ago, and served three domestic destinations with an Accra hub – as well as Lagos, Nigeria – operating a fleet of three Embraer ERJ 145 aircraft. The AWA services flew to Kumasi, Takoradi and Tamale in Ghana as well as Lagos, Nigeria and won a loyal customer base.

"We have done pretty well," said AWA's chief operations officer, Apilgy Afenu. "We gained the International Air Transport Association's (IATA) Operational Safety Audit Certification and have signed codeshare interline agreements." ■

Stephen Williams

The need to replicate successful intervention

Though immediately impactful elsewhere, LifeStraw still seeks to find a foothold in South Africa

In Africa, diarrhoea causes more deaths in young children than AIDS, malaria and measles combined, largely due to exposure to polluted water sources in poor communities. Studies have shown that filtration is the most effective way to prevent diarrhoea – treating water at the household level has been proven to be more than twice as effective in preventing diarrhoea as treating water at the source.

In South Africa, the disease is responsible for 20 per cent of under-five deaths, and though progress has been made in scaling up multiple interventions to reduce diarrhoea in the last decade, challenges still remain.

Life in fibres

Swiss company Vestergaard has built a pioneering water filtration system that removes 99.9999 per cent of bacteria and viruses, virtually eliminating the risk of contracting waterborne diseases. The LifeStraw system uses advanced hollow fibre membranes that require no chemicals such as chlorine or iodine. Water enters the system and is forced through the narrow fibres under high pressure, trapping bacteria, protozoa and other contaminants, making the filtered water completely safe to drink.

The LifeStraw system is available in personal, household and community guises, with the latter able to hold between 70,000 and 100,000 litres – enough to serve communities for several years. The device was awarded Times Magazine's Invention of the Year for 2005, and has garnered numerous other international awards.

Aqua4Life is the Southern African distributor of LifeStraw products, and is partnering with governments, NGOs and aid organisations to deliver their life-saving systems to impoverished communities. The biggest successes have been achieved in Kenya, with 1,700 LifeStraw Community purifiers being delivered to over 300 schools in the country last year, reaching 160,000 children. Nearly 900,000 household water filters are being introduced to the country's Western Province, providing point-of-use water filtration to Kenyan residents for at least 10 years.

However, despite the Kenyan success story, the devices are reportedly being ignored by the South African government. South Africa is facing a water crisis, with ageing infrastructure and poor operations severely impacting the provision of clean water.

According to Chris Bateman, editor for the Health and Medical Publishing Group (HMPG), LifeStraw could at the very least give dysfunctional rural municipalities enough time to fix broken pipes and increase their maintenance capacity.

"The applicable LifeStraw technology, available for the past nine years and winner of ten top international awards for excellence in design, outperforms any similar device on the South African market, exceeding the World Health Organization's criteria of the 'highly protective' category for microbiological performance," says Bateman.

A community unit costs around US$500, working out at around 0.5 cents per litre over three years, representing a very affordable option.

At one of the few places where the system has been installed in South Africa, the results have been startling.

"Already the prevalence of infant and child diarrhoea at a crèche in Masiphumelele township in Cape Town, serving 106 small children, has dropped by 100 per cent" Bateman pointed out.

Nico Germishuizen, managing director of Aqua4Life, says that only 35 community units have been installed in the provinces of Kwazulu-Natal, Pretoria and Cape Town, while another 250 family units have also been installed. "We need to roll out clean water to approximately 11mn people in rural areas and with the daily break down of sewage works affecting major waterways this will start affecting peri urban and urban populations in near future," Germishuizen said. The system can be used in any areas where there is some development, particularly in the mining and agricultural sectors, some of the biggest culprits in contaminating water sources.

"Anywhere where you have some development, be it mining, agriculture or urbanisation, there will be water sources close by. These will become compromised so there has to be a solution to keep it clean. If not the development will cease. So Aqua4Life looks for solutions to that whether in the medium or long term, while authorities get their issues sorted out," Germishuizen explained.

Costs and analysis

According to a study by the University of the Witwatersrand (Wits), governmental departments need to scale up 13 interventions in order to significantly reduce diarrhoea by 2030.

These range from vaccinations, to treatment of comorbid diseases, adequate nutrition for mothers and children and most importantly, interventions for the provision of water, sanitation and hygiene.

The cost of implementing all 13 interventions will range from US$510mn to US$960mn, and will take a number of years to put into action. Approximately five million cases of diarrhoea can be averted by 2030 if the interventions are scaled up to full coverage.

However, despite achieving these goals, approximately six million households (46%) do not have access to piped water in their homes and 1.4mn households (11 per cent) still lack access to sanitation services. Furthermore, the sanitation services in over 3.8mn households (26 per cent) in formal areas do not meet the required standards. ■

Dale Hes

Better dams needed

Over one million people in sub-Saharan Africa will contract malaria this year because they live near a large dam, according to a new study which, for the first time, has correlated the location of large dams with the incidence of malaria and quantified impacts across the region. The study finds that construction of an expected 78 major new dams in sub-Saharan Africa over the next few years will lead to an additional 56,000 malaria cases annually.

The research, published recently in the journal *Malaria*, has major implications for new dam projects and how health impacts should be assessed prior to construction. Encouraged by the increased volume of international aid for water resource development, sub-Saharan Africa has, in recent years, experienced a new era of large dam construction.

"Dams are at the center of much development planning in Africa. While dams clearly bring many benefits - contributing to economic growth, poverty alleviation and food security - adverse malaria impacts need to be addressed or they will undermine the sustainability of Africa's drive for development," said biologist Solomon Kibret of the University of New England in Australia, the paper's lead author.

Undertaken as part of the CGIAR Research Program on Water, Land and Ecosystems, the study looked at 1,268 dams in sub-Saharan Africa. Of these, just under two-thirds, or 723, are in malarious areas. The researchers compared detailed maps of malaria incidence with the dam sites. The number of annual malaria cases associated with the dams was estimated by comparing the difference in the number of cases for communities less than five kilometres from the dam reservoir with those for communities further away. The researchers found that a total of 15mn people live within five kilometers of dam reservoirs and are at risk, and at least 1.1mn malaria cases annually are linked to the presence of the dams.

"Our study showed that the population at risk of malaria around dams is at least four times greater than previously estimated," said Kibret, noting that the authors were conservative in all their analyses.

The risk is particularly high in areas of sub-Saharan Africa with "unstable" malaria transmission, where malaria is seasonal. The study indicates that the impact of dams on malaria in unstable areas could either lead to intensified malaria transmission or change thenature of transmission from seasonal to perennial. ■

Electricity from Ethiopia's clean energy

Ethiopia has commissioned a pilot electricity production project at the US$1.8mn Gilgel Gibe III hydro plant

Located on River Omo in south of the country, the Gibe III plant has 10 turbines each with a capacity of 187MW. According to Alemayehu Tegenu, Ethiopia's Water, Irrigation and Energy Minister, the trial power generation will involve three turbines with an output of 561MW.

Gibe III is part of an ambitious GibeOmo hydroelectric project in which the first two phases are operational. Gibe IV and V are planned for the future. With a height of 243m and a total installed capacity of 1,870MW, the Gibe III project is expected to increase the generated capacity by 234 per cent upon completion.

Even with a current installed capacity of 2,200MW, just about 20 per cent of the country's 100mn people are connected to the national grid. A huge demand for electricity exists within the domestic market.

The majority of the rural based populace rely on fuel wood - hurting the forest cover through deforestation.

It is expected that increased availability of cheap electricity will provide an increasing number of young people with an opportunity to start small businesses and reduce environmental degradation.

While half of the electricity generated from Gibe III will be used domestically, 500MW will be exported to Kenya, 200MW to Sudan and 200MW to Djibouti. The country plans to have an installed capacity of 37,000MW by 2037 and become a key electricity export to the fast expanding economies of the region.

Ethiopia is expected to benefit from the Eastern Africa Power Pool (EAPP) initiative aimed at creating and expanding clean energy transmission lines among over 12 countries in East Africa and the Horn of Africa.

Beyond Kenya, Sudan and Djibouti, Ethiopia has recently signed deals with Tanzania, South Sudan, Rwanda and Yemen to supply power, mainly from hydro sources.

According to Mekuria Lemma, head of strategy and investment at the Ethiopia Electric Power Corporation (EEPCo), the regional power pool will increase Ethiopia's export earnings and boost economic growth in power importing nations. Already, the construction of the high voltage 500kV, 1,100km long power transmission line from Wolyta Sodo in Ethiopia to Suswa substation in Naivasha Kenya is scheduled for completion in 2018 to commence trading in electricity.

> **"The direct beneficiaries of the project are households, business and industries in communities located in Kenya... The interconnection with Ethiopia will ensure access to reliable and affordable energy to around 870,000 households by 2018" -**
>
> **Gabriel Negatu, AfDB**

Recently, the Ethiopia Electric Power signed a US$119.3mn contract with China Electric Power & Equipment Technology Company (CET) for the construction of the 433 km transmission line the Ethiopia side. The funding came from the African Development Bank (AfDB) which has also loaned US$118mn to the Kenya Government for the project. The overall cost of the project which includes two connector stations in each country is estimated at US$1.26 billion. Two converter stations will be located in Wolayta Sodo in Ethiopia and Suswa in Kenya. Construction will also involve putting up steel towers and transmission cables.

On the Kenyan side of the border, compensation of land owners on the expected route of the 437 km transmission line is currently underway. "The direct beneficiaries of the project are households, business and industries in communities located in Kenya, the direct offtaker of the power. The interconnection with Ethiopia will ensure access to reliable and affordable energy to around 870,000 households by 2018," noted AfDB's Gabriel Negatu. Meanwhile, Ethiopia is also seeking to develop other clean energy sources.

Recently, the EEPCo and the Corbetti Geothermal Company have signed a 25-year power purchase agreement for the first 500MW to be generated from the Corbetti project in Central Oromia region.

Corbetti Geothermal Company is owned by Reykjavik Geothermal Ltd of Iceland.

Expected to cost US$4 billion, the planned 1,000MW Corbetti project is to be constructed in two phases over a period of 10 years and will be one of the largest geothermal facilities in Africa upon completion. The project US$4 billion project will be funded through 25 per cent equity and 75 per cent debt financing.

According to EEPCo Chief executive officer Azeb Asnake, Ethiopia will connect transmission lines to neighbouring countries to create market for power trade. While the country has invested heavily in hydropower generation, it has become necessary to exploit geothermal as the country falls in the Rift Valley region. The only geothermal power plant in the country is Aluto Langano with a generating capacity of 7.3MW. It is currently undergoing a US$30mn, twophase upgrade to attain 70MW with funding from the World Bank, Japan and the Ethiopian Government.

At least 24 wells, each with a depth of 2,500 metres, will be drilled in this expansion. ■

Mwangi Mumero

The prospects for wind power

Why the wind power industry in Africa is expected to experience a huge boost in installed capacity over the next few years

While wind power on the continent currently makes up only one per cent of total electricity, or 1 GW, there is an additional 10.5 GW in the pipeline, the study 'Development of Wind Energy in Africa' shows.

Africa is faced with the challenge of generating more power to meet existing and future demand as more than 500mn people on the continent lack access to electricity, the study says, adding at least eight African nations are among the developing world's most endowed in terms of wind energy potential.

Noting that wind power is one of the world's fastest-growing energy resources, the study said Somalia, Sudan, Libya, Mauritania, Egypt, Madagascar, Kenya and Chad have large onshore wind energy potential. Two interesting schemes came on line recently a 52 MW project recently in Ethiopia and the €633mn (US$723.4mn), 300 MW Lake Turkana Wind Power Project in Kenya. This feature will look at the issues, trends, challenges and stakeholders behind Africa's wind power market.

The prospects for wind power in Africa are looking pretty good.

"Historically it has been Morocco, Egypt and South Africa which have led development but progressively other countries on the continent are opening up to wind power," commented Luis Nuche at Vaisala, a Finnish company specialising in wind measuring products and services.

Potential places for wind power

According to the Global Wind Report 'Annual Market Update' 2014, Africa's best locations for wind farms lie along its coasts and in the eastern highlands. "The offshore wind energy potential is best off the coast of Madagascar, Mozambique, Tanzania, Angola and South Africa", notes the IEA's 'Africa Energy Outlook' 2014 report . In practice up until 2014, commercial scale wind power developments were concentrated in just six countries: Tunisia, Ethiopia, Kenya, Egypt, Morocco and South Africa, which accounted for nearly 96 per cent or 3,909 MW out of an installed total capacity of 4,074 MW. See Table 1.

Table 1 African Wind Market 2014

Country	Wind farms	Capacity (MW)
Algeria	1	11
Cape Verde	5	31
Egypt	9	745
Eritrea	1	1
Ethiopia	3	325
Gambia	1	1
Kenya	4	343
Libya	1	20
Mauritius	1	2
Morocco	13	885
Mozambique	1	1
Namibia	1	1
Nigeria	1	11
Mauritania	2	36
South Africa	18	1,368
Tanzania	1	50
Tunisia	3	243
Total	66	4,074

Sources: BBC, thewindpower.net

> **"By 2018, the African Development Bank expects 10.5GW of additional wind power as a number of countries introduce annual targets for renewable energy and regulations to accommodate private and independent power producers"**

By 2018, the African Development Bank (AfDB) expects 10.5GW of additional wind power as a number of countries introduce annual targets for renewable energy and regulations to accommodate private and independent power producers.

Drivers behind expansion

The take-off in wind generation projects, ranging from a single turbine to a large wind farm owes much to the increasingly favourable political climate as governments across the continent recognise the urgent need to provide consistent reliable cheap power for households and businesses like cement, bottling plants, oil, gas and mines, mobile phone operators as well as computers and IT equipment that underpin economic development. A sharp drop in wind technology prices combined with increased investor interest in Africa from foreign investors and development banks has greatly increased the availability of finance. There is also the impetus from President Obama's 2013 Power Africa project, which aims to add 30,000 MW of new and cleaner power generation by 2018 enough to connect 60 million homes and businesses. Of renewables, wind power is especially suited to cater for the rural population, 85 per cent of whom live without electricity.

The case for off- grid

Low population density with only five people per square kilometre outside towns and cities, makes grid expansion into rural areas prohibitively expensive and large- scale centralised power grids uneconomic. For example, in sparsely populated countries such as Mali, grid expansion can cost up US$19,000 per kilometre, reports the IEA. This is too costly for African consumers' budgets and for governments to subsidize. To overcome the economic and practical difficulties Grant McDermott, a research scholar at the Norwegian School of Economics advocates ," a decentralised grid solution" for rural communities where renewables such as wind or solar can power water pumps, schools, ranches and telecommunications. ■

Nicholas Newman

Developing decentralised, distributed generation

Many countries in the developed world created power generation networks based upon large centralised power generation stations with significant investment in power transmission and distribution networks. From the African context this has not happened yet there is a huge need to increase power generation capacity. The thought of addressing this through a small number of large gas, hydro, coal or nuclear-fuelled power stations seems attractive at first, however the goals of supplying power for all in Africa, could be better addressed with de-centralised distributed generation, lots of smaller localised power stations to address the electrification needs quickly.

A challenge with large centralised power stations is how to maximise the energy content of the valuable fuels. Coal power stations may convert the energy in the fuel to only 40% electricity. With the most modern efficiency gas-turbine power plants this may be increased to 60%. All of the remaining energy is lost through heat. In addition, further power losses occur through transmission lines, where moving electricity from point of generation to user, can be as much as 2%. Then there is the issue of electricity theft along the line, which is a controversial issue as well as a dangerous practice. The investment in this transmission infrastructure is also significant as well as time consuming and poses its own challenges.

The developed world is now moving away from these centralised power systems towards a more decentralised option. Decentralised energy produces power close to the site of use, reducing losses associated with transmission and improves energy efficiency. If it incorporates a combined heat and power plant total fuel efficiency may be as high as 90-95% by using both the electricity and waste heat created during the production of power and utilisation of the original fuel. The heat can be used to generate steam, hot water or can be used directly in a drier or industrial facility. It can also be converted to cooling, though an absorption chiller – a valuable driver for air conditioning or refrigeration systems – particularly relevant in the African context. Industrial plants in Nigeria are moving towards the deployment of CHP and trigeneration technology. Diageo's Guinness Ogba brewery was one of the African pioneers.

Micro-grids development in Africa is an interesting concept, particularly if it is deploying renewable energy technology in the form of wind or solar power. However both wind and solar are intermittent power generation technologies. Storage of electricity is costly. One solution to this would be to supplement with micro-grid with a gas fuelled engine operating on biogas. Biogas is a renewable fuel generated from the degradation of organic waste or energy crops. Gas can be stored and used to generate electricity when is needed. Whilst European biogas plants often generate at full capacity for close to 100% of the year, in order to generate the maximum level of feed in tariff payments, in Africa, a different model could be deployed with a greater amount of gas storage and redundancy in the engines, so power can be generated when is most needed in order to balance the grid. Tropical Power's new waste fuelled biogas plant in Kenya, is developed for this particular approach, combing biogas with combined heat and power and solar technology.

If there is no opportunity for the deployment of biogas in a given area, an alternative would be to use natural gas or diesel. Both of these are costly fuels and are not renewable sources of energy. Therefore if these are used, then a key requirement for the asset is the maximisation of fuel efficiency. GE's new '616' diesel generator is a 2.5MW engine, that requires only 184g/kWh of fuel, meaning significant fuel savings and reduced carbon emissions versus established technology. This is currently being deployed for the first time globally at a major flour mill in Nigeria.

One of the challenges with large centralised power stations is to maximise the energy content of the valuable fuels

At the recent East Africa Power Industry Convention in Nairobi a "round table" discussion was held to investigate how to develop Africa's power generation network and whether to opt for a centralised or decentralised system. The general consensus was a hybrid solution was the optimal one. With some larger plants being deployed in major urban areas such as Nairobi or Dar es Salaam which have a significant demand for power. Consistent users of electricity and heat would benefit from CHP technology and offsetting energy demand with solar power during the day. A distributed power generation would mean a more balanced and stable transmission network and reduced investment costs. Creating energy from waste materials was also deemed an attractive proposition and there is significant un-tapped potential for the generation of power from organic waste, sewage and water treatment plant as well as dump-sites.

In summary the development of sub-Saharan Africa's power generation infrastructure is largely a blank sheet of paper. The continent should be able to learn from its more developed neighbours and jump a step in its electrical infrastructure development and move towards a more fuel efficient, lower carbon and sustainable system. Maximisation of valuable energy resources will play a key part in the world's future development. ■

Generating network energy guarantees

The reasons why power constraints threaten the business and growth of key mobile communications operators

Africa's otherwise burgeoning telecommunications sector is being hit by chronic power outages that could threaten the sector's future growth. The crisis is hitting not just the smaller markets in Africa, but also those in the continent's major trading blocks. These include the Southern African Development Community (SADC), whose biggest member South Africa is plagued by power cuts, and ECOWAS, whose big hitter Nigeria is in an even worse power predicament.

Nigeria is Africa's largest telecom market by investment and subscription, with over 140mn mobile phone subscribers. And according to a Pyramid Research prediction, by 2019 the country will have 182mn mobile phone subscribers – equivalent to more than one per person, on average. By comparison, only 3.4 per cent of Nigerian households have a fixed-line (DSL or broadband) Internet connection, according to the not-for-profit organization Research ICT Africa (RIA).

Yet, the Nigerian Communications Commission (NCC) outgoing Executive Vice Chairman Dr Eugene Juwah recently said that poor power supply could pose an existential threat to the growth of telecoms and information technology sectors in the country. Reports from Lagos this summer also spoke of the mobile phone operators MTN and Etisalat having to curtail their phone services in the commercial capital, on account of fuel shortages.

Across the continent in Zambia, an IDG News Service reported that many of the communication towers that have been constructed by the Zambian government through the Zambia Information and Communication Technology Authority (ZICTA) - the country's telecom sector regulator - to provide communication services to rural areas have remained unused, due to lack of grid power.

By September 2015, it was announced that a deal had finally been completed for the sale and lease back of a total of 949 telecommunications towers in Zambia from Airtel Zambia to IHS Holding Limited (IHS) - a leading mobile telecoms infrastructure provider.

Ambitions and obstacles

More than 30 African countries are now experiencing power shortages and regular interruptions in telecom services, according to the African Development Bank Group. And these frequent power outages are leading to lost sales and damaged equipment. The Bank is currently involved in a number of key initiatives, aimed at developing better connectivity on the continent. These include projects such as: the East African Submarine Cable System; SEACOM; and the East African Marine System (TEAMS).

These various connectivity projects backed by the bank are inline with the ambitions set by the various countries within the region. A recent report from the Project Management Institute said that after decades of relative isolation mobile and high-speed Internet networks for the region's more than 900mn people are being completed "with astonishing speed."

Market dynamics and business models must be optimised to deliver communciations growth, and power is a key function of this equation (PPhoto: Siemon)

By 2020, some 80 per cent of people in sub-Saharan Africa are likely to have mobile phones, up from 52 per cent in 2012. And by 2016, mobile broadband connections (such as 4G) are expected to quadruple from their 2012 level to 160mn. Frost & Sullivan predicts the region's mobile payments market could be worth US$1.3bn, by 2019.

But these lofty ambitions rest on the hope that - one day - there will be a reliable power supply. Currently, most mobile phone service providers and business process in Africa are forced to use generators to power their installations. This is not always a guarantied source of power and mobile operators often find themselves at the mercy of fuel scarcity - even in oil rich countries like Nigeria.

Disconnection, not connection

This lack of electricity in much of sub-Saharan Africa is providing a real disconnect between the continent's telecommunications ambitions and the ability of utilities to power the networks. In order to avoid reliance on the national grid and circumvent the cost of using private generators, operators including MTN are now looking to increase their investments in renewable energy technologies.

Indeed, the 'greening' of Africa's communications sector is being touted by some of the multilateral agencies, as well as those in the industry, as the right way forward. Following its September acquisition of the Zambian telecoms towers, IHS said that it is now preparing to roll out "renewable energy solutions across the Airtel network." This it said, will form part of an ongoing programme to replace "old and high

consuming diesel generators with low capacity efficient generators".

Its statement read, "By the end of 2016, up to 80% of all IHS towers will be run on hybrid solar solutions. This green source of energy is ideal for the region, where towers are required in often isolated rural areas with little or no access to the electricity grid but ready supplies of sunshine. In our part of the world, solar-powered towers are not only potentially more environmentally friendly but also more reliable and efficient."

The costs of communication

Sub-Saharan Africa currently has a total of over 240,000 towers across countries, which provides mobile coverage to 70% of the region's population. And this is expected by GSMA - the international mobile phone operators' association - to grow to over 325,000 towers by 2020. However, the majority of telecom tower sites in Africa are deployed in either off-grid areas or problematic grid areas with unreliable power supply.

> "The future of Africa's telecommunications may be decided on just how well power can be managed"

GSMA estimates that that for a typical tower site in Africa, the share of energy costs can be as high as 40 per cent of the overall network operational expenditure. An off-grid site consumes nearly 13,000 litres of diesel every year, at an average annual energy operational expenditure of over US$21,000. And an unreliable-grid site consumes around 6,700 litres of diesel.

So by adopting green power alternatives for telecom towers, GSMA argues, this would result in an annual operational expenditure savings of nearly US$17,000 per site for an initial investment of US$042,000 per site. The return on investment (ROI) would be over 35 per cent and the payback would be in less than 3 years.

A key driver of the conversion to greener alternatives will be energy service companies (ESCOs). These provide energy to towers owned by mobile network operators (MNOs) and dedicated Tower Companies.

Mike Conradi, a partner at the global law firm DLA Piper, said that although ESCOs have rarely been used, thus far, in the telecoms sector they are reasonably well established in mature markets worldwide. This puts them in a good place to take over the responsibility of handling power system investment and daily activities for MNOs, in exchange for a fee.

Conradi examined the 'pros and cons' of the three most commonly used business models in the telecoms industry, namely: a power purchase agreement (PPA) model; a monthly flat fee (MFF) model; and an energy saving agreement (ESA) model. Under the PPA model, the ESCO acts as if it were as a national grid. The MNO buys energy from the ESCO based on a kilowatt-hour price. But the disadvantage is that because the ESCO charges its fee on the basis of usage it has less of an incentive to reduce the amount of kilowatt-hours taken.

The MFF model, superficially at least, has the appearance of being a more energy efficient model. Here, the ESCO has a greater incentive to reduce the number of kilowatt-hours that are used - than under the PPA model. In addition, any surplus power can be sold back to the local community. However, the drawback is that this model assumes a fairly stable, or at least predictable, usage pattern. And it cannot accommodate an unexpected influx of customers onto the mobile network, or a change in their usage patterns - unless risk parameters are placed into the contract that enable a surcharge to be imposed.

Under the final ESA model both parties have an incentive to create a system that is as energy efficient, and therefore as cost effective, as possible. But while this sounds like an attractive model, Conradi says that this may not, in practice, be the most appropriate method to use in emerging markets. One reason is that the calculation of saved energy could be problematic in locations where proper monitoring systems have yet to be installed.

There are concerns, which have also been expressed about the market dynamics. The worry is that the ESCOs may come to play a dominant role in the local power market and could therefore be in a position to abuse their power. Conradi, though, dismisses these concerns. He argues that that the countervailing power enjoyed by the MNOs/tower companies, as large "anchor" customers for the ESCO, will help to mitigate any monopoly power the ESCO might otherwise hold.

Despite the acknowledged risks, the emergence of ESCOs into Africa's emerging markets represents an exciting development for the mobile telecoms industry. They have the ability to provide expertise and management skills to control power costs. They may even act as a stepping-stone to the development or expansion of a national electricity grid system.

And just as telephone landlines were unable to cope in earlier years with the rise in demand for telecommunications in Africa - thereby providing the market opportunity for mobile telephony over the past decade – so to have sub-Saharan Africa's various national power grids proved themselves to be woefully incapable of delivering power to the rise in mobile phone networks.

With the grid system unable to cope, the future of Africa's telecommunications may well be decided on just how well the various power and management alternatives are able to step up to the plate. ■

Nnamdi Anyadike

Ready to replace your UPS?

The key factors that must be considered when operating a standby power unit for an extended period

There can be no doubt that an uninterruptible power supply (UPS) unit is essential for the majority of businesses, especially given today's power problems. However, many businesses have already invested in UPS solutions for a number of years. These units typically have a lifespan of between five and 10 years, depending on a number of different influences, and have to be replaced at some point. However, the question of when to replace an older UPS with a new one is not always straightforward.

A UPS, like any other electronic equipment, does not have an unlimited lifespan and organisations need to make a decision as to what to do when reaching its 'life expectancy'. Organisations can simply replace the old UPS with a new one, they can upgrade it to extend life and performance for a few more years, or they can run it until it fails completely, doing nothing other than basic maintenance. Each of these scenarios has its own pros and cons and would be applicable to a certain set of circumstances.

When it comes to this decision, there are many factors to consider, with the primary ones being the present UPS conditions and capabilities, as well as future requirements and constraints. Evaluating the current situation and determining future needs is essential. Firstly, it is important to establish whether or not the legacy UPS is or will soon be unable to meet its performance requirements and if it can be upgraded. If the unit has been discontinued, spare parts are unavailable, excess maintenance is required, or the UPS cannot meet critical performance requirements, this then indicates that a UPS is at or near the end of its usable life and should be replaced.

However, if the UPS is meeting the load and runtime requirements, an organisation could choose to leave it in service and run it to failure in an attempt to gain maximum return from existing investment. This may be a risky path, as there is no way to determine exactly when a UPS will fail, and so careful planning is necessary to minimise the impact of the UPS's imminent and inevitable failure.

If the UPS is not at the end of its service life for the intended application, the next step is to evaluate the UPS according to a number of factors, including energy efficiency and future load requirements. The efficiency of the UPS system determines the operating cost to a large extent. It is therefore important to understand how efficiently the UPS operates today and how it can be improved through upgrades, changed load requirements, or by replacing with new units. These energy savings should be accounted for in the decision process, and the current efficiency compared to the efficiency of the new UPS being considered to determine potential savings and improvements.

Think about the future

Future load requirements are based on how the IT load is expected to change over time. This should also be a significant influencing factor in the decision of whether to keep, upgrade, or buy new UPSs. If the existing UPS system is at or near full load and future load growth is anticipated, options to add capacity must be explored, such as adding more power modules, if the until allows, or replacing with another UPS unit. Obviously, if the existing UPS capacity cannot be changed to meet the future requirements, then buying a new UPS is an option. The new UPS could also be used in conjunction with the old UPS in order to share the load. On the other hand, if the existing units are lightly loaded, then buying new or performing upgrades may not be necessary. If the load growth is minimal, it may be possible to replace with smaller units. Downsizing the UPS would improve efficiency and likely lower service costs. ■

Elrica Quick, APC Product Specialist, Drive Control Corporation

Ensuring battery backup

Power problems are a reality in South Africa for the foreseeable future, and many organisations have already implemented solutions to minimise downtime and ensure business can continue as close to normal as possible. Common equipment to enable this includes uninterrupted power supplies (UPS) with battery backup that benefits in a number of scenarios. This type of system either provides enough time to safely shutdown equipment that may be damaged by sudden power cuts, bridges the power gap for the switch to generator power, or powers critical equipment for a few hours. The battery is essential to the successful use of such a failsafe, however, what many organisations forget is that no battery lasts forever, and they have a limited lifespan before they must be replaced. If the battery fails, the entire backup power solution is at risk. It is therefore critical to monitor the health of batteries to ensure your battery backup will not leave you in the lurch when you need it most.

Batteries have a limited lifespan and can only be used a certain number of times before they will cease to hold a charge, which means they will be unable to perform their intended function.

General wear and tear and usage will also inevitably deplete a battery's capability, and the general expected life of a UPS battery is typically between three and five years as a result.

However, the life expectancy of the battery is greatly affected by a number of factors, which can be controlled to ensure you get maximum usage from your battery. Failing to account for these factors can also cause premature battery failure, leading backup solutions to fail themselves, often at the most inopportune moment.

The physical location or environment of the UPS battery is an important consideration. A temperature-controlled environment is ideal, as temperature can have a significant effect on the life of a battery. In addition, the UPS should ideally not be located in areas of high humidity, very dusty environments, or areas where it may be exposed to corrosive chemicals or fumes.

As mentioned, temperature is a critical factor when considering UPS batteries, specifically the ambient temperature in which the battery is located. Most UPS batteries are lead acid batteries, which operate best at an ambient temperature of 25 degrees Celsius. Keeping the UPS in an environment that is as close as possible to this ideal will maximise its life expectancy. If the temperature is too high, the battery will bulge, damaging the cells, resulting in the requirement to replace them. If the battery is kept at a consistently low temperature, the cells will begin to crystallise. Both scenarios result in degraded performance and a reduced life span over time. ■

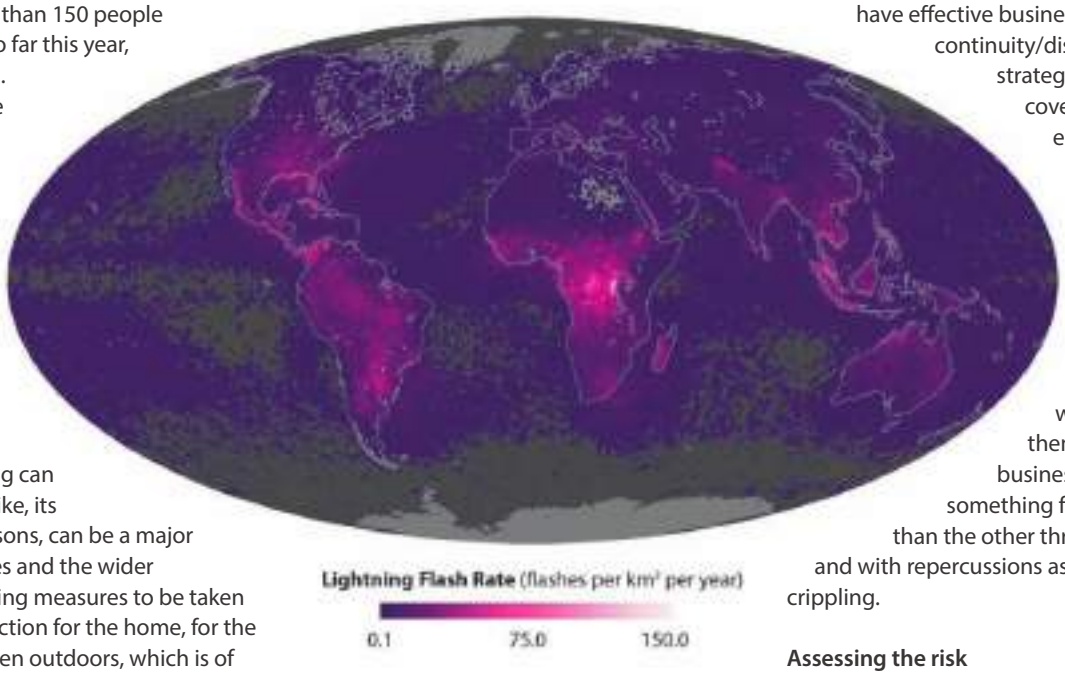
One step ahead of lightning

Protection is of paramount importance for economic, environmental and safety reasons, across all sectors in African economy

Every year, lightning causes billions of dollars worth of damage across the globe knocking out communications, power, domestic and industrial electrical appliances and equipment; not to mention the fact that it is estimated over 24,000 people are killed by lightning each year, with almost a quarter of a million injured. According to the National Lightning Safety Institute in the US, which keeps lightning stats for countries around the world, in South Africa alone, more than 150 people have been killed so far this year, [at time of writing].

And these figure don't even take into account livestock and wildlife, which also suffer high losses and injuries from these 'bolts from the blue'.

Knowing 'where and when' lightning can be expected to strike, its regularity and seasons, can be a major asset for businesses and the wider community, enabling measures to be taken that provide protection for the home, for the workplace and when outdoors, which is of critical importance across Africa where huge percentages of the population are involved in agriculture. Helping supply that understanding of 'where and when' are satellite images and mapping projects, such as NASA's Tropical Rainfall Measuring Mission. Its maps result from 15-year observation periods, the latest of which ended in 2013. Latest images, taken with the mission satellite's Lightning Imaging Sensor, revealed areas of Central Africa where some of the most intense lightning occurs consistently throughout the year. While other areas on the globe, such as India, may have seasonal peaks that compare in intensity with the African levels, they do not occur with the same consistent frequency. Imagery also shows that lightning occurs far more over land than at sea. For these reasons, taking the impact lightning has on the economy, wider society and the environment very seriously, is crucial across this continent.



The South African Weather Service, Pretoria, provides data and information for most regions in SA

Business Protection

It's not surprising that there are many companies offering advice, consultancy and services to businesses and organizations across Africa to help them minimize the detrimental effects of lightning. One dilemma prevalent across the spectrum of businesses, however, and cited by a number of specialists in this field, is that many perceive they already have protection through insurance cover of some kind. Often, however, without the right precautions, technology and business-continuity strategy in place, a typical business insurance policy will not cover for lightning-strike-related damage and the results of such an oversight can be devastating.

Yet, doing a risk assessment for the impact lightning can have on a business is something many small and medium-sized businesses fail to undertake. While they may have effective business-continuity/disaster recovery strategies in place to cover flood, fire or earthquake damage, most believe – if they've even considered it – that being struck by lightning is so unlikely that it won't happen 'to them' or their business. But it's actually something far more likely than the other threats combined -- and with repercussions as potentially crippling.

Assessing the risk

Considering the effects of even a direct hit by lightning can be largely mitigated if the right steps and precautions are in place, it makes absolute sense for any business to do even a simple risk assessment. This could start by accurately quantifying the risk to a business of a direct hit based on available local / region al meteorological information. A business should identify all critical equipment it operates that could, potentially, be damaged or destroyed by a lightning strike -- whether a direct hit or one which takes place some distance away though delivers effects down

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the power and communications lines -- if that equipment were not, adequately, protected. In a worst-case scenario of a direct hit and no protection, the full financial impact of having to replace lost capital equipment, together with the downtime the business would experience should be estimated as accurately as possible. With these steps followed, coming up with a corporate strategy to mitigate the effects of a damaging lightning strike should be relatively straightforward – including a strategy that can be scaled as the business grows.

Embarking on this assessment is made easier, as a result of available research data that exists – such as the NASA project, for instance and research published by the South African Weather Service, Pretoria, provides data and information for most regions in SA including lightning ground-flash intensity (LGD) data. This shows the average number of strikes experienced by a specific square kilometre in a year. In Cape Town, for example, one direct strike per square kilometre of the city is experienced every year. For Durban the figure rises to two per year but the LGD for Johannesberg leaves them behind, experiencing seven direct ground strikes per square kilometre of the city each year. This makes protecting a business in Jo'berg somewhat more pressing than the other cities!

At this point of an assessment, determining the percentage of the average number that will impact a business, either directly or through damaging surges, must be calculated. Many businesses will turn, at this stage, to the expert advice of lightning protection or earthing companies for final assessment before selecting the right protective equipment to use – such specialist companies will recommend and install as well as help in the assessment.

With an estimate for the direct and indirect costs incurred due to a catastrophic lightning event, an appropriate figure on what should be spent on protective measures can be ascertained. All electrical equipment, for instance: computers, phones, printers, and alarm systems, are the kinds of things making up direct (capital) costs. Any damage to a building itself may also fall into this category. As for indirect costs, these are less tangible and can relate to lost business because the phone system was down when that 'big order' enquiry tried to reach you – but the phones and computers were out of action. The potential for lost data if computers end up being 'fried' is also very likely, but to put a figure on this is hard, though can be potentially disastrous.

When it comes to protective equipment and procedures, installing effective surge

Knowing 'where and when' lightning can be expected to strike, can be a major asset for businesses

protectors that shield all sensitive and important electronic equipment will be paramount. Proper SABS or CSIR approved products in SA should be a minimal requirement and, with reference back to any insurance policies that exist, checking to find what is expected will normally lead to the right equipment approvals ratings. External lightning conductors on the outside of the building are also advisable in areas of higher risk; these will run from apex down into the earthing system and will complement the internal surge protection measures taken.

An Expert On the Ground

When it comes to specialists in this area, one leading international player with offices in Jo'berg (DEHN Africa (Pty) Ltd), is the German company, DEHN. The DEHN Group itself has about 1,600 employees globally and manufactures and markets its own portfolio of lightning protection, surge protection and safety equipment. The company has a large number channel partners, installers and resellers across Africa. Some play two or three of these roles, and are located in: one in Botswana, two in the DRC, one in the Ivory Coast, one in Madagascar, one in Mauritius, two in Namibia, three in Nigeria, one in Rwanda, 10 in SA, one in Uganda and two in Zimbabwe.

> **"Many businesses will turn to the expert advice of lightning protection or earthing companies for final assessment before selecting the right protective equipment to use"**

The company has over 300 national and international patents on products ranging from surge protectors to short circuit interruption systems and direct current disconnection systems – all typically used in business and facility protection strategies and installations.

The company has a process it follows – the DEHNconcept – which enables it to calculate, design and recommend the appropriate protection for a specific application. At the same time, its e-Learning resource is aimed at helping companies and businesses understand their own requirement as comprehensively as possible, so they can make the right, (as far as possible), informed choices for the lightning, surge protection and safety equipment that will meet their risk assessment and business needs, as closely as possible.

This summer, the company came out with the third edition of its Lightning Protection Guide, which is now in its 30th year. The 500-page reference work, (available direct from the company at www.dehn-international.com), provides experts and non-experts with techniques and procedures, latest product information, regulatory requirements and the fundamental steps that can be applied to more than 30 separate scenarios.

In June, one of DEHN's channel partner, Pontins, installed what it claims to be 'a unique' protection system for Absa Bank's Project Lumen – described as the world's largest light emitting display (LED) – in the Johannesburg CBD. The system includes an insulated, high-voltage resistant HVI conductor, designed by DEHN, together with Pontins' engineers. Before installing the HVI Conductor, Pontins undertook risk assessments and determined that the highest lightning protection level (LPL) – level one – was required for Project Lumen. Interestingly, the Absa Towers' building was constructed using steel-reinforced concrete. Electric continuity tests performed on the concrete-steel-reinforcing, at strategically exposed points, established that interconnected reinforcing should be used as natural down conductors, and natural earth electrodes, to enhance splitting the lightning's current during a direct strike. ■

Tim Guest

The EC750D crawler excavator delivers superior productivity and efficiency

An effective, efficient excavator

Why the Volvo EC750D delivers heavy-duty performance, even in the toughest applications

The new EC750D crawler excavator from Volvo Construction Equipment combines a robust design with a powerful engine. The EC750D is built to deliver superior productivity and efficiency in a variety of heavy construction applications. The machine is equipped with a new Volvo D16 Tier 3 engine, which provides increased horsepower and fuel efficiency in a combination with a robust design to ensure a low total cost of ownership.

This powerful engine works in harmony with an improved, Volvo-designed electro-hydraulic system, which uses intelligent technology to control on-demand flow and reduce internal losses in the hydraulic circuit.

This machine incorporates Volvo's unique integrated work mode system, through which operators can choose from a range of modes for optimum performance. When the operator selects the best work mode – I (idle), F (fine), G (General), H (Heavy) and P (Power) – the rpm is already set for maximum efficiency.

The machine attachments include large buckets, with a capacity range of 3.3-5.16m3, for faster and more efficient on-site production.

A comfortable, low noise cab with adjustable seat increases operator efficiency to further improve production. Volvo's

industry-leading cab boasts superior visibility from large expanses of front and side glass with slim cab pillars and the spacious environment provides ample storage and leg room.

Prime performance

The EC750D is equipped with efficient technology to ensure outstand digging force in any application. With improved stability, tractive force and Volvo's unique ECO mode, this machine offers improved cycle times for outstanding performance.

This excavator's constant high system pressure delivers greater digging force and reduces cycle times, particularly when working with hard and heavy materials. For more power, better productivity and increased manoeuvrability, the high system pressure and durable track ensure impressive tractive force when climbing gradients and travelling over unstable ground. A wider track gauge and heavier counterweight improve stability even when working in challenging environments.

The optional boom float delivers more control, minimises operation costs and maximises uptime. In addition, the ECO Mode optimises this hydraulic system to reduce flow and pressure losses. It is automatically selected but can be switched off via the keypad.

Tried and tested

Built with durable Volvo components, a reinforced structure and machine protection, the EC750D has been designed to last. Robust parts and easy service access increase uptime and keep maintenance to a minimum to reduce operating costs.

Volvo's tried and tested components have proven to be reliable even in the toughest applications, delivering maximum uptime.

The reinforced heavy-duty boom and arm are built from high strength tensile steel to increase reliability, even in severe applications. Steel strips are welded under the arm to further increase protection. The reinforced upper and lower frames are built to withstand tougher conditions for improved durability and reliability. The strengthened idler frame, track links and bottom rollers are designed and built for constant impact. Built-in heavy-duty plates provide additional protection to the underside of the machine to prevent damage from rocks and debris.

Grouped filters and an electric distribution box are easily accessed via the wide-opening compartment doors and walkways. Greasing points can be accessed in one machine position and the EC750D's design facilitates easy cleaning, inspection and maintenance for increased uptime.

Work in harmony

To ensure increased productivity and profitability, the EC750D works in harmony with a range of durable Volvo buckets and attachments. When the machine is fitted with Volvo's heavy-duty bucket, built using wear resistant plates, it excels at digging compact materials including loose rock, hard clay and gravel – perfect for quarrying and mining applications.

The EC750D also features a password-protected attachment management system, which enables storage of up to 20 different attachments. The system allows the operator to pre-set hydraulic flow and pressure inside the cab through the monitor, which ensures the use of various attachments for increased versatility. A wide range of Genuine Volvo wear parts are offered with the machine to protect the entire bucket, including teeth, adapter, segments, side cutter and shroud. ■

The EC750D is built with durable Volvo components and a reinforced structure

AfriSam's cost-effective cement solutions centre

A new facility for product excellence enables builders to deliver projects more efficiently and sustainably

Focusing on finding cost effective solutions that do not compromise on quality will be the differentiating factor for cement suppliers in the future. Working collaboratively with customers to devise customised solutions that consider specific application needs is critical to future sustainability.

According to Mike McDonald, manager at AfriSam's Centre of Product Excellence, the centre has a number of key drivers that all work towards increasing customer satisfaction and productivity. An ongoing hot topic is environmental stewardship and a number of AfriSam initiatives underpin the company's intent. He said, "Cement and aggregates are scarce resources and AfriSam believes that their use should be optimised. By gaining a thorough understanding of the material properties and how to apply them as well as an understanding of concrete technology, we can ensure viable solutions."

As part of the company's service offering, an AfriSam technical consultant will visit a customer's site to assess the specific intended position of the product and any challenges that may be encountered (Photo: AfriSam)

Knowledgeable support

The Centre of Product Excellence is actively involved in day-to-day customer interactions in terms of technical queries and support needs. This support function is undertaken by a team of skilled and experienced individuals who fully understand the application of product.

Leveraging its intimate knowledge of its own products, AfriSam works closely with commercial admixture companies to develop activators that will ensure normal concrete performance even when high levels of supplementary cementitious materials are added.

A further function of the Centre of Product Excellence is ongoing product development. McDonald said, "We invest in finding fit for purpose concrete solutions, a journey that begins with a detailed site visit by one of our experienced technical consultants."

The consultant collects samples of material and ascertains specific information on curing temperatures, mixing temperatures, as well as any additives and accelerators being used. The gathered data and samples are subjected to analysis at the AfriSam's material laboratory at the Centre of Product Excellence and the consultant is then able to draw up possible solutions.

AfriSam's Centre of Product Excellence undertakes ongoing product development in order to provide fit-for-purpose concrete solutions (Photo: AfriSam)

Raising standards

Aligned to producing customer centric solutions is the Centre of Product Excellence's emphasis on knowledge sharing to maximise product implementation. McDonald said, "By familiarising our customers with our products and solutions we can together uplift the standard of concrete solutions in the industry."

Courses facilitated by the Centre of Product Excellence range from a high level course for engineers who already have a working knowledge of all the material, right down to a beginner level.

This focus on training extends to a number of external initiatives which include support of final year civil engineering students through access to the Centre of Product Excellence's laboratories and providing mentoring or participating as an external examiner for their projects.

"We also sponsor fully fledged memberships for final year, postgraduate and tertiary education personnel at the Concrete Society of South Africa. They are the future of the built environment so we encourage their participation," said McDonald. ■

Attachments for tough jobs

Bobcat promotes its latest tools for heavy duty scenarios and introduces a ne application to manage them

There are significant cost and productivity advantages offered by the use of attachments on skidsteer and compact tracked loaders made by construction equipment manufacturer Bobcat. With a unique range of over 70 different Bobcat attachment families to choose from, Bobcat compact loaders can be used for multiple applications on work sites, keeping required investment down and minimising the amount of manpower and machinery required.

Indeed, Bobcat is conducting a new 'Tough Jobs' promotion with its dealers throughout Europe, the Middle East and Africa (EMEA), to emphasise the benefits, hosting live demonstration events to promote the use of some of the company's more specialist attachments in various locations. The company has showcased the Bobcat Laser Grader attachment being used in the construction of a new sports field. It has conducted a programme of attachment demonstrations. It has impressed potential customers in the local utilities, construction and rental industries with demonstrations of machines such as the Bobcat T590 tracked loader, equipped with a Bobcat wheel saw attachment, cutting trenching in concrete for work being carried out at a company's headquarters. It has even co-opted a plant hire firm to organise a demonstration day for customers.

Free 'World of Attachments' App

Every Bobcat attachment is designed and manufactured for a perfect fit with matching Bobcat loaders for optimum job performance, dependability and durability. To support the Tough Jobs campaign and to help customers find the right Bobcat attachment and tool carrier for their application, Bobcat has developed the new 'World of Attachments' app, which is available in 26 languages as a free download for iOS and Android tablets on the App Store and Google Play Store. Bobcat

Bobcat's S450 Angle broom

is aiming to have the free download for the PC version of the app available before the end of 2015.

In the Bobcat World of Attachments app, the complete Bobcat attachments range has been organised based on application areas and product categories. There are eight main application areas that have been employed - agriculture; forestry; landscaping; construction & demolition; road work; lifting & handling; grading & levelling and snow removal.

The new app uses a simple navigation system to allow the user to browse through the different application markets and discover the breadth and versatility of the Bobcat attachments that can be used in these markets.

These are cross-referenced for compatibility with all the products in the Bobcat range, including not only Bobcat skidsteer and compact tracked loaders, but also Bobcat compact excavators and Bobcat telescopic handlers.

The Bobcat World of Attachments app provides the user with a fingertip tour of the complete range of Bobcat attachments, all of which have an information popup that includes a 'read more' button leading to a separate screen where background information is given. There is also general information based around a large image of the attachment with highlights popups, a gallery of selected images that shows the attachment in application and a specification table for the attachment and a compatibility table for the attachment with the full range of Bobcat loaders, excavators and telehandlers.

Bobcat has also added an easy-to-use search engine function that allows the user to search on attachment name or on machine name. The search engine function allows the user to perform searches on particular Bobcat attachments and machines with cross-references to help them to choose the right attachment and machine for their application.

Quick-change BobTach attachment system

All Bobcat compact loaders are equipped with the quick-change BobTach attachment mounting system, allowing them to be combined quickly and safely with several hundred different Bobcat attachments, delivering versatility and time-saving efficiency across a huge range of different applications. The BobTach system can quickly and easily replace a bucket with pallet forks, a landscape rake, a backhoe, an auger, a grapple or a host of other attachments.

This unique design also ensures hydraulic attachment changes are carried out quickly and smoothly. Trapped line pressure can make attachment changes anything but quick. So Bobcat loaders come with a handy feature to release trapped pressure. By simply pushing the coupler inward, the hydraulic oil is released through a return line back into the machine. The result is clean, quick attachment changes time after time.

Bobcat also offers the optional Power BobTach system, whereby the operator can change non-hydraulic attachments without even leaving the cab. This is activated by a switch on the control panel, which raises and lowers the BobTach levers hydraulically, increasing the versatility and productivity of all Bobcat compact loaders. ■

Agile and advanced systems for buillders

Working with Carmix 3.5 TT, the first machine with Promix technology, and Carmix Plus: which offers augmented reality in a new application

Agility and productivity, small size and top performance are the core values that come with the Carmix 3.5 TT, one of the iconic products to have contributed to Carmix's success in more than 150 countries. Much of the company's recent success can be attributed to the new machine setup introduced earllier in 2015, at Intermat, with the innovative Promix system used to instantly monitor the design mix.

Agility on site

In the construction industry, the Carmix 3.5 TT is the self-loading concrete mixer that is synonymous with on-site agility and ease of use. Its length - at just over five metres with the front loader raised - can reach any place and operate in small spaces. There's also the ability to rotate the barrel at 300° to load from over two meters of height on all four sides of the machine. This way, it's possible to direct the concrete jet with the utmost precision, leaving the machine motionless on a single spot. The short turning radius, 1,700mm internally and 3,700mm externally, ensures great agility on site.

With Promix, every machine is a mobile station for the production of concrete.

The compact dimensions make it possible to bring the company's most important novelty on site: Promix. Carmix 3.5 TT will in fact be the first series of machines equipped with the new digital data monitoring system for concrete. An innovation that allows operators to control the machine accurately, with data updates every ten seconds on the slump, temperature, humidity, rotational speed of the mixer and an indication showing the mixture is ready.

The data to increase productivity and competitiveness

The possibility to have direct information on the concrete being prepared offers a competitive advantage because it makes it possible to prepare a perfect design mix, in line with the requirements of customers and regulations. This is added to the structural and mechanical features of Carmix 3.5 TT: the concrete mixer with an actual yield of 3,5m3, the double mixing blade, the mixing and jet speed - regardless of the number of RPMs of the diesel motor - and the concrete jet in reverse; then, the 600-litre loader - controllable with the Joymix - with a hydraulic command opening to unload directly into the sand or gravel barrel. Finally, the ability of Carmix 3.5 TT to face, even when fully loaded, slopes up to 30 per cent.

Adding augmented reality with an app

Carmix's success in 2015 has been marked by one word: technology. After the Promix, the company offers Carmix Plus, an app that uses augmented reality to provide information on the machines and to access exclusive contents.

Available on Google Play and Apple Store, Carmix Plus shows the Carmix world in an entirely new way. Indeed, the company has developed a digital system to allow users to access reserved digital contents from a smartphone and to "photograph" some tags.

With simple operations, it is then possible to interact with the 3D animations and to see the product and institutional videos. In the Carmix machines, in fact, there will be tags, devices similar to stickers. Once photographed, they provide access to all the additional information needed to know the advantages and potential of the machines. It will be like diving into a real site, with concrete mixers in action and with images to show how Carmix loads, mixes and works to make a perfect concrete mix. Furthermore, users can share their experience and send screen shots to their friends and colleagues. ■

An exceptional event in infrastructure enterprise

Why Bell is bullish about the impact of Bauma Conexpo Africa 2015 on the business prospects of equipment manufacturers and distributors

South Africa's premium homegrown manufacturer, Bell Equipment, has capitalised on Bauma Conexpo Africa 2015 to showcase its extensive product offering available on the continent and reaffirm its commitment to the African market in the face of tough trading conditions.

In the weeks leading up to the show Bell Equipment released its mid-year results, which showed a modest improvement relative to 2014 with favourable exchange rates, efficiency improvements and a focus on the Northern Hemisphere construction equipment markets dulling the impact of the major difficulties in some of the company's major markets and industries.

Cashflow concerns in construction

While revenue was R2.9bn (US$221mn), down 16% from R3,4 billion in the same period last year, the company's profit after tax increased 67 per cent to R101mn and earnings per share increased 71 per cent to 106 cents. "There has been no significant recovery in the mining activity so we are competing for a slice of a much smaller global pie but as a company we are in much better shape," said Bell group chief executive Gary Bell.

He added, "Work in the domestic construction industry is at a low level but we are fortunate that the construction markets in the United States and United Kingdom are doing relatively well at this time. With a greater portion of sales revenue coming from the Northern Hemisphere, our German factory has produced at a higher rate than the past 10 years and it is our intention to localise more product to the region to lower manufacturing costs and manufacture in closer proximity to our major markets."

While the Russian market is currently a fraction of its previous size due to sanctions and the reliance on mining, Bell has an alliance with Nefaz, a Russian company, whereby Nefaz will manufacture bins for Bell trucks to allow the company to get a foothold in the market when it recovers.

Mining matters

Commenting on the African region, Bell said, "The mining industry in Africa, like elsewhere in the world, is experiencing an unprecedented downturn but our broader range of products that we are able to offer today through our strategic alliances with John Deere, Liebherr, Bomag and Finlay means that we are not totally dependent on mining activity. We're continuing to introduce new partner products to provide customers with innovative solutions, like the Finlay Dual Power units, which are aimed at giving significant savings on energy costs."

Among the new partner products on show at BCA 2015 were the Bomag MPH 364 Recycler, which has been developed by Bomag for

smaller projects and entry level contractors as well as the Bomag BMP 8500 multipurpose compactor.

Bell continued, "Not only do we provide a full line of equipment to focus on other sectors, like construction and industry, but we have also continued to invest in our support network in the region and have opened four new Customer Service Centres in recent months."

Opportunities to rebuild businesses

Bell welcomed Bauma Conexpo Africa 2015 as an opportunity to meet and network with a large number of current and potential customers. "With the tough economic conditions we've seen a trend towards customers 'buying down' with a stronger demand for used machines than new machines. As a company we are focused on trading back, upgrading and putting our machines back to work as premium used machines because they offer good value compared to the low cost, less reliable new products coming from the East," he said.

"Customers are also looking to extend the life of their products and as a result the support of our aftermarket, spare parts and service is receiving higher priority so that we can be competitive in terms of what we offer our customers in the way of parts pricing. We are continually monitoring availability levels to ensure we improve our service quality."

The company, whose 60-year history has been characterised by being adaptable and innovative, has noticed a market trend towards smaller construction machines and has increased the company's production rate of Tractor Loader Backhoes to cater for demand. Conversely, no improvement in the commodity demand is expected in the short term and production rates for Articulated Dump Trucks at the Bell factory in Richards Bay have been adjusted accordingly.

In spite of the subdued demand for mining machinery globally, progress continues on completing the line of Bell E-series trucks with the larger B35E to B50E range planned for release into Europe in mid-2016. ■

Equipping to expand in Suez

Supplied by Egyptian dealer Otrac Heavy Equipment, Doosan and Bobcat equipment has played an important role in the intensive construction works that have been undertaken for the recently completed extension of the Suez Canal, heralded as an historic achievement that will help to boost the Egyptian economy.

The Suez Canal dates back to the middle of the nineteenth century and the original canal was completed in November 1869. Egypt was the first recorded country to build a man-made canal of this kind across its land for international trade. Connecting the Mediterranean Sea directly with the Red Sea, the Suez Canal is the shortest route between the East and the West.

> **With the parallel waterway allowing two-way traffic on the Suez Canal, the Egyptian government aims to more than double annual canal revenues to US$13bn in less than a decade**

The Egyptian Ministry of Defence (MoD)initiated and managed the US$8.5bn canal extension, deepening the main waterway and providingg ships with an additional 35km (22mile) channel parallel to the main Suez Canal, as part of a larger undertaking to expand trade along the fastest shipping route between Europe and Asia.

Hatem Ouda, chairman of Otrac Heavy Equipment, discussed his company's role in supplying Doosan and Bobcat machines to the MoD for use on the Suez Canal Extension project. He said, "Our machines have been taking part in this great project and are now considered a part of Egyptian history. This has been based on the trust placed in Otrac and the confidence shown by the MoD in our capabilities."

Egyptian President Abdel Fattah el-Sisi (centre) with a Doosan excavator

The economic benfits of extension

With the new parallel waterway allowing two-way traffic on the Suez Canal, the Egyptian government aims to more than double annual canal revenues to some US$13bn in less than a decade. Authorities also plan to build an industrial and logistical zone along the canal over the next five years, hoping to draw investment on the vital shipping lane between Asia and Europe for companies eager to place operations along the route.

Mr Outa commented, "Our success would not have been possible without the full assistance of and collaboration with Doosan Construction Equipment to fully achieve our goals."

He elaborated, "Since we were established in 1992, our company has had the business philosophy of assisting employees to achieve their career dreams, ensuring customers' success and satisfaction and increasing Doosan market share and reputation in the Egyptian market. We will continue to provide excellent management and our unique aftersales services under our 'Machine Never Stop' slogan, to not only maintain but increase our customers' satisfaction in Doosan and Bobcat products." ■

Doosan's new centre of equipment innovation

Construction equipment company Doosan Infracore Bobcat Holding (DIBH) has opened an Innovation Centre at its facility in Dobris in the Czech Republic, forming part of the Doosan Campus at the site, integrating R&D with manufacturing, sourcing and training. Jose Cuadrado, Doosan Infracore's vice president for compact equipment in Europe, the Middle East and Africa (EMEA), said, "By integrating every part of our operations and product development on one site from engineering and design, sourcing, manufacturing, marketing, aftermarket and distribution to training for our EMEA dealers and customers, the Doosan Campus will bring enormous benefits in every part of our business."

Technology leaders speak on innovation

Scott Park, president and CEO of Doosan Infracore Bobcat Holdings (DIBH), added, "The new Dobris Innovation Centre is part of our global network of R&D centres. It was built in parallel with new R&D Centres in Incheon in Korea and the Acceleration Centre at Bismarck in the USA, involving over US$100mn of total investment."

Martin Knoetgen, president of DIBH's business in EMEA, commented, that the Dobris Innovation Centre is being developed as an "Engineering Centre of Excellence, which will serve as an expert R&D centre for all Doosan engineering teams" and "take responsibility for small loaders and compact excavators from 13 tonne".

The new centre of excellence

The Dobris Innovation Centre focuses on product development, research and testing activities. With more than 8,000m2 of floor space for prototyping and testing and 1,400 m2 of office area, it is a location where advanced and even unique technologies are installed. The new facility houses integrated cross-functional product development teams consisting of product management, product engineering, test laboratory, advanced analysis, reliability growth, prototype shop, compact NPD functions as well as supplier development and sourcing. New complex test laboratories have been built for product validation ensuring a high level of performance, reliability and durability. ■

The Energas upgrade

A leading supplier of high-end and specialised equipment to the oil and gas industries in Southern Africa since 2001, Energas Technologies has supplied a packaged heating system for a local oil storage facility upgrade.

Heavy fuel oil (HFO) is stored in large tanks and has a high viscosity at ambient temperature. Before loading into tanker trucks, the HFO needs to be heated in order to reduce the viscosity. Laetitia Botha, product engineer for Energas Technologies, said, "In order to address this need, we have supplied an HTT packaged heating system, which will be used to heat up this heavy fuel oil from 20˚C to 80˚C. The system comprises a gas-fired oil heater and thermal oil circulation system as well as a control system and heat exchangers.

Energas Technologies has used HTT equipment for a heavy fuel oil depot upgrade

"The packaged unit is fully automated and fitted with local control systems, process control and instrumentation equipment. The control system is interfaced with the local RTU PLC, which means that making changes on the heater units remotely is a possibility."

The HTT packaged heating system boasts a number of advantages, including:

- Increased productivity due to higher process temperatures.
- Lower investment costs due to lower operating pressure of the thermal oil compared to steam.
- Lower operating and personnel costs through unattended operation
- Low maintenance costs.
- World-class product support.

The modern three-pass design of the heating system's burner brings advanced heater technology to the project. Botha explained, "The heat transfer medium flows through two concentric coiled tubes in the heater that are connected in series and the hot flue gases are guided by means of defined annular gaps in the counterflow. In contrast with the conventional type of construction, the flue gases are recirculated twice inside the apparatus; in the second and third passes, their energy is delivered to the transfer medium by means of convection."

Based in Boksburg, South Africa, Energas has supplied high end and specialised equipment to the oil and gas industries in Southern Africa since 2001. ■

SDLG launches backhoe at bauma Africa

The machine is low on emissions and high on fuel economy

SDLG launched its new B877 backhoe loader at bauma Conexpo Africa 2015. Showcasing its machinery at the same time as the brand's South African dealer, Babcock International Group, the firm's range of popular wheel loaders will also be on display at the event.

The SDLG B877 backhoe loader has been very popular in the Middle East since it came to the market at the end of 2014. It has now expanded its reach, being also available in African markets, SDLG expects the backhoe loader to attract business throughout the region.

"The competitively priced B877 backhoe loader offers customers a fast return on their investment as well as excellent performance in a wide range of applications," stated Stefan Bach, SDLG business manager for Africa.

"This is a challenging market at the moment with a decline in the mining sector – but with more focus being put on construction, the B877 backhoe loader is an ideal solution for small contractors and other construction customers. With a great turnout at the show, we expect the model to be as popular here at bC Africa as it has been in other regions."

The B877 has been created for everyday operational use. Its robust frame and components ensure it can handle the harsh environment of the job site, while the operator's cab offers excellent visibility to provide job site safety. Featuring a suspension seat, air conditioning as standard, and opening rear windows, the operator cab is designed to maintain maximum operator comfort.

The machine's powerful turbo-charged 70 kW engine is low on emissions and high on fuel economy and provides a torque reserve of 40 per cent. Offering a hydraulic torque converter and synchronized four-speed transmission, the B877 can reach speeds of up to 40 km/h.

The B877 comes with both a special front-steering drive axle, which can be disengaged with a switch for better efficiency at high speeds, and a rigid drive axle with closed wet brake and an electronic differential lock, for better traction in hazardous conditions. The machine's 55 degree turning radius also provides easier maneuverability at busy job sites.

The machine offers a three-pump, four-valve hydraulic loop that has been engineered to ensure that lifting and steering operations work with ease. The B877's hydraulic elements are centrally designed for easy maintenance and service. It provides further flexibility and can be equipped with a variety of attachments and tools to handle an even more diverse range of tasks, including a multi-purpose front bucket as standard.

Set-up more than 120 years ago, Babcock International is a well known brand in infrastructure and mining across the world. The company's footprint stretches across Southern Africa and in-depth knowledge of the construction equipment market makes it an ideal dealer partner for the SDLG brand.

"We have a growing machine population in Africa – and our customers require reliable support to ensure their machines are up and running when they need them," says Bach. "Babcock International has a strong team of experienced sales specialists and service technicians who offer excellent support to our customers. We are proud to have the company's support as we continue to develop in this market."

The LG6300E SDLG excavator was exhibited alongside the B877 at bauma Conexpo. Featuring a 30 tonnes rating and powerful digging force, the LG6300E is ideal for a wide range of heavy duty applications and can accommodate up to a 1.9 m^3 bucket.

Attendees at the show also had the opportunity to view a range of machines from SDLG including the LG968, LG958 and LG938 wheel loaders and a G9190 motor grader. ■

Powerscreen unveils new machinery in South Africa

Powerscreen hosted an exclusive Open Day in Johannesburg, South Africa, alongside local distributor ELB Equipment to provide information on Powerscreen equipment and services

The Open Day took place on 22 October at the ELB premises, near Johannesburg Airport.

The event showcased a range of Powerscreen machines including the official African launch of the Powerscreen® Warrior™ 600 screen, and Powerscreen® Trakpactor™ 260 impact crusher. According to event organisers, customers were given the opportunity to watch live demonstrations and were provided with an overview of each machine.

Commenting on the forthcoming line up at the South African Open Day, Stephen McCartney, Powerscreen international sales director said, "We are very happy to host this Open Day in conjunction with ELB Equipment. I'm also pleased to announce that the Open Day will be the official launch event in South Africa, for the Warrior 600 Screen and Trakpactor 260 impact crusher. We really look forward to meeting with customers and discussing the features and benefits of the entire Powerscreen equipment range."

Powerscreen welcomed customers, distributors and journalists to attend the Open Event and official launch of the Warrior 600 Screen and Trakpactor 260 impact crusher. Attendees met representatives from the Powerscreen sales and customer support teams as well as representatives from ELB Equipment. The Warrior 600 is the most recent addition to the Warrior™ mobile screening product family. ■

Robust product design and intelligent software

The benefits from increased plant availability with expanded Warman WBH slurry pump range

Plant availability is paramount in all commodity sectors and there is an increasing emphasis on optimisation of pumping systems from end users as part of their cost savings drive. "One of the options in terms of reducing operating cost is to replace older technology with new," said Rui Gomes, product manager slurry pumps for Weir Minerals Africa and Middle East.

Gomes pointed out that Weir Minerals Africa has a depth of experience and expertise in terms of assessing pumping systems. This allows the company to provide solutions aimed at assisting customers in reducing total cost of ownership on pumping systems. He said, "The recent expansion of the Warman WBH range of pumps now gives our customers access to the latest technology across a range of pumping applications."

Heavy duty applications

The Warman WBH slurry pump is typically used in heavy duty applications such as mill discharge, slurry transfer and process pumping applications and is ideal for both greenfields and brownfields projects.

"During its development we extrapolated the best attributes of our existing heavy duty slurry pumps and incorporated these into the new range," Gomes said.

In 2010 the Warman WBH 75 and Warman WBH 100 were launched to the African market through a trial programme. The twofold objective was to obtain field and verification data and to gain market acceptance.

The Warman WBH pump has proven so popular with customers that the range has been expanded upwards and downwards, and covers from 50 mm discharge diameter up to 300 mm discharge diameter with flow rates of between 5 litres per second and 800 litres per second.

The Warman WBH range is available with both metal volute or rubber liners, depending on the application. For instance, rubber would be suited to gold, copper and platinum pumping applications whereas a metal volute is used predominantly in diamond and coal processing plants while in iron ore processing, a mix of metal and rubber is used.

Furthermore, the Warman WBH pump features a streamlined impeller and volute design, enabling flow paths within the pump that enhance the overall performance and combine high efficiency and long life.

Designed for a long life

The pump is designed with a throatbush or front liner adjustment mechanism, which

The Warman WBH slurry pump undergoing testing at Weir Mineral Africa's Alrode manufacturing centre

The new Warman WBH slurry pump on site at a crushing plant

continuously minimises the impeller gap as recirculation increases.

"Recirculation of the slurry within the pump will significantly increase the wear, which in turn decreases the component life. To counter this and provide a significantly improved life on the impeller and throatbush, the gap between these two components can be mechanically adjusted from a single point on the pump exterior. This makes ongoing adjustment, as normal wear occurs, a simple task," Gomes explained.

The front liner adjustment mechanism also rotates the throatbush for a more even wear pattern and eliminates premature failure due to localised wear which would occur without this feature.

The new bearing assembly has been engineered to handle higher capacity motors and the bearing assembly shaft has a shorter overhang, which minimises deflection during operation and will increase the expected bearing life.

"The final design was based on a combination of wear component data gained through years of experience and the use of sophisticated software, including Computational Fluid Dynamics (CFD). From a wear life perspective this increase in volute life has translated into a decrease in maintenance costs for pumps users," Gomes said. ■

The new Warman WBH slurry pump installed at a crushing plant

Safer quarry operations

The quarry & aggregates industry demands durable and reliable machines with no unscheduled downtime; hence, equipment is selected specifically to maximise uptime and productivity at the lowest cost per ton and to maintain a safe work environment

There are three key elements that can impact safety: the equipment, the operator and the site itself. Well designed equipment, such as large wheel loaders and off-highway trucks for example, provide safety features built-in: low effort climbing and three points of contact with stairway instead of vertical ladders, perforated plated walk-ways and stairs instead of glued strips, handrails positioned to provide easy access (ex: for cleaning windows).

Caterpillar's 16M Motor Grader offers operational efficiency and overall productivity

Equipment

Operator visibility can be enhanced with rear view cameras on the cutting edge, mirrors, object detection systems. An adjustable seat will offer a better visibility and will help reduce the strain on the back and neck of the operator. Isolated cab mounts and seat mounted steering controls as well as integrated steering and transmission control functions, air conditioning and electric windows provide a more comfortable environment.

Operators sometimes come from other countries and should therefore be able to select their preferred language on the cab monitor displays. Other cab features to look for are Roll Over Protection System (ROPS) now compulsory in many countries as well as Falling Object Protective Structure (FOPS) and Falling Object Guards (FOGS) that further protect cab operators from falling debris.

Noise has a real impact on operator fatigue and manufacturers such as Caterpillar have worked to reduce the sound level inside the cab to a lower decibel than the human voice, as in the 988K and 990K wheel loaders for example.

In dusty quarry environments, a pressurized operator station with positive filtration limits the exposure to hazardous fumes and silica dust.

Operators

Operators are trained to conduct daily equipment safety & inspection walk-arounds to identify issues. The safety checks should include tyre pressure and a visual inspection for tyre cuts as well as ground level checks for fluid levels on transmission/torque converter, hoist/brake hydraulic engine oil, diesel fuel and engine coolant.

All operators should be properly trained before starting work in a quarry to most efficiently operate the equipment, and understand how their driving can impact safety, fuel consumption and the life of the tyres.

The site haul roads

The proper design of haul roads in a quarry has a significant impact on safety as trucks must be able to travel with their target payload in safe conditions, at the rated speed, in all weather conditions, day and night. Changes in weather condition such as rain in dryer climates for example, can be a hazard. To ensure a continuous and safe hauling, a quarry road cannot be left to chance and has to be carefully designed. This means crowned straight sections, super-elevated curves, and safety berms with drainage ditches on both sides, constructed with well graded sub-base material. Where haul roads support two-way traffic, a minimum of three truck widths is recommended for the straight road sections. For the corners and curves, at least four truck widths are recommended to allow trucks to pass each other safety without reducing their speed, with or without load. A good haul road also allows the operator to have a better visibility of the site and to avoid blind spots. If this is not possible, then the truck speed must be reduced accordingly and speed limit signs displayed and enforced. Safety berms guard the haul roads and it is recommended they measure at least one-half of the wheel height of the largest truck in the fleet.

A well designed and maintained haul road helps avoid accidents, reduce fuel consumption, increase tyre and machine components life and allow higher speed and therefore shorter cycle times. ■

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Bringing practicality into a crusher

Kleemann's MC 110 Z EVO jaw crusher has been praised for design innovations that can contribute significantly to performance

The Mobicat MC 110 Z EVO jaw crusher from Kleemann

There are many advantages to Kleemann's MC 110 Z EVO jaw crusher design; some of which include its ergonomic character, functionality and operability, practical value, degree of innovation, long life, ecological compatibility, technical quality, technical function, manufacturing technology and quality.

In the manufacturing process of the MC 110 Z EVO jaw crusher, Kleemann incorporated these aspects and more into the design of the plant right from the start, with the integration of a specialist product designer in the development process. The result is impressive: The appearance of the new jaw crusher alone stands out with a fresh and modern look. The plant is also clearly arranged and structured thanks to its design and colour scheme. However, the intelligent design of the MC 110 Z EVO also offers further advantages for difficult tasks.

The detail in crusher design

Otto Blessing, head of Development and Design at Kleemann, noted, "The new design is much more maintenance-friendly than other machines of this class. All functional areas are easy to access, thus simplifying the handling. This factor makes an indirect contribution to the high operational reliability. For instance, large protective or design covers do not have to be removed completely for maintenance and adjustment work. Instead, they are simply loosened and swivelled. There is therefore no longer any need to operate the crusher without safety devices."

The well thought out design, meant while in operation at a new construction site, Kleemann was able to considerably reduce the tooling times. The retrofitting from the transportation to the operation position only takes a few minutes with the integrated hopper walls and foldable side conveyors. This featurehas been favoured by the contractors.

Both the direct drive, of the crusher and the electric drives for vibrating chutes, conveyors and grizzly, makes a noticeable contribution to the reduction of fuel consumption. This plant can be operated very efficiently - and with huge power reserves. This is confirmed by customers from various countries and market segments. The MC 110 EVO also impresses during feeding and material delivery: The Continuous Feed System (CFS) creates an extremely consistent filling of the crusher area, thus contributing to a significant improvement in performance.

Primary purposes

The MC 110 Z EVO is mainly used in the re-using of demolition material. It is in its element when mixing mixed rubble and concrete, for instance. In such applications the plant may be expected to complete its task reliably. This could lead to substantial amounts of fine material, so effective pre screening is key.

The plant is suited, also, to concrete recycling. The MC 110 Z EVO ranks very highly in this case due to its generous clearance and easy access to machine parts. Suppliers of concrete, asphalt and aggregate materials can put the machine to good use in their quarries, where quality pre-screening is very important. Operators may be impressed, also, by the cleverly designed material flow, low fuel consumption and high-quality design of the plant. ■

MB's model bucket crushers

Earth movement and demolition equipment manufacturer MB SpA has enjoyed significant success in 2015 with two new models of bucket crushers, which were introduced to complete the company's range of specialist equipment.

Suitable for excavators that exceed 18.5 tonnes of weight, the bucket crusher BF 80.3 is compact, versatile and suitable for the operations of crushing and recycling of inert material or resulting from demolition (road works - excavations - pipes - pipelines). In spite of its size and lower weight compared to larger models, it reaches productivity of 34m3 per hour.

Suitable for excavators weighing over 43 tonnes, the bucket crusher BF 135.8 was created to meet the specific needs of crushing in quarries, for aggregates recycling operations in landfills, for volume reduction of materials resulting from demolition in large yards, or excavation, sewage systems and preparation of aggregates.

MB's bucket crushers help operators improve performance

With a productivity of 75m3/h, a capacity of about 1.60m3 and a total weight of 7.50 tonnes, the crusher bucket BF 135.8 is versatile and handy.

MB continues to invest in research and development, focusing on the specialization of products offering superior performance. ■

Trucks

MAN's Euro 5 flagship makes its African debut

After its release in Europe in 2008, the Euro 5 **MAN** TGX 26.540 6x4 BLS (XLX) EfficientLine truck-tractor made its official debut in South Africa at a launch ceremony at MAN Truck & Bus SA's Pinetown assembly plant in September 2015.

"The MAN TGX 26.540 EfficientLine will bring proven economy, productivity and safety enhancements to the long-haul truck transport industry operating across sub-equatorial Africa," says Geoff du Plessis, managing director, MAN Truck & Bus (SA).

More torque, greater economy

"Powered by the MAN D26 common-rail diesel engine, the 540hp/2500Nm TGX 26.540 gives long-haul operators an additional 60hp over MAN's SA long-haul stalwart, the TGS 26.480 6x4 BLS (LX). With an extra 200Nm of torque and a Euro 5 emissions rating, the TGX 26.540 BLS uses selective catalytic reduction (SCR) technology and AdBlue to lower carbon as well as other toxic emissions, making it a bona fide next generation long-haul truck-tractor, designed to meet the evermore stringent demands of the local market," explained du Plessis.

"Initial testing of the TGX 26.540 BLS in South Africa by MAN ProfiDrive has shown comparable fuel efficiency to current TGS long-haul truck-tractors. An encouraging two-litre per 100 km diesel saving compared to other local truck models was achieved and due to the TGX's extra power and torque, shorter trip times and greater productivity were achieved," added du Plessis.

Considering southern Africa's mountainous topography, the ability for a long-haul truck-tractor to safely ascend and descend steep gradients at optimum speeds is a primary purchasing criterion for long-haul operators and the TGX 26.540 boasts a host of driveline technologies that enable benchmark average speeds.

Coupled to the D26 power plant is a 12-speed MAN TipMatic automated manual transmission that effectively keeps engine speed at optimum rpm (in the 'green band') without the driver having to manually change gears. The aerodynamic design of the TGX EfficientLine cab (fitted with drag reducing aerokits), plus a low power consumption electronically managed compressor (APM) and an energy-efficient EcoLife alternator, bring additional automated fuel savings to the vehicle.

To prove the long-haul capability of the MAN TGX 26.540 EfficientLine, MAN will undertake a 14,500 km road trip across 10 southern African countries over 52 days, commencing at the Pinetown launch

Better safety

"The TGX braking system is the latest incarnation of MAN's BrakeMatic technology, which includes a hydrodynamic PriTarder that combines an electronically controlled engine valve brake (EVBec) with a Voith Aquatarder. This combination of braking technologies produces an extra 110kW of braking power over the TGS 26.480 and, by blending and re-blending the EVBec with the service brakes, delivers more braking capacity and better engine cooling across a wider speed range. The MAN PriTarder® is particularly effective at slower speeds, making hill descents safe at 60km/h under a full load," noted du Plessis.

Additional standard safety features include a lane guard system (LGS), adaptive cruise control (ACC) and an emergency stopping signal (ESS), along with EBS, ASR and ESP.

Enhanced ergonomics, productivity and intelligence

Despite the many technology-enabled efficiency tools in the new MAN flagship, the TGX pays equal attention to the comfort, efficiency and safety of the driver. "The TGX is equipped with the roomiest cab ever released in southern Africa, the XLX, which boasts an extra 200mm of width and full standing height. It is a true long-haul home from home, with extra-wide double bunks and all the latest comfort features, from air conditioning to a hi-tech media system with Bluetooth functionality," said Dave van Graan, head of truck sales at MAN Truck & Bus (South Africa).

The TGX in-cab tech array also includes an axle load display, aka onboard weighing system, for both truck and trailer and features MAN TeleMatics — fully-fledged Fleet Management system — with touchscreen navigation capability. Driver training is undertaken by MAN's proprietary ProfiDrive programme that includes modules from basics to advanced and specialised applications.

"The long-haul truck transport industry in southern Africa is the primary logistics service provider in the region and a central player in its economic development. Keeping truck transport sustainable and cost competitive is, therefore, of primary importance to the region's development.

"Euro 5 SCR technology lowers fuel consumption and, thus, limits carbon emissions. Advanced driveline technologies powered by the 540hp/2500Nm engine enable better average speeds with fewer gear changes and service brake applications, all leading to lower maintenance costs and vehicle downtime.

"The TGX definitely checks all the boxes on the long-haul operator's wish list and we at MAN Truck & Bus SA are confident it will set the new benchmark in this sector of the trucking industry," van Graan said.

Taking it to Africa

To prove the long-haul capability of the MAN TGX 26.540 EfficientLine, MAN will undertake a 14,500 km road trip across 10 southern African countries over 52 days, commencing at the Pinetown launch.

Vehicle

The utility and practicality of Mahindra Genio Plus

Mahindra Genio Plus

Mahindra South Africa has introduced a new version of its popular Genio single-cab pick-up.

The Genio Plus retains the range's aerodynamic cab design, comfortable and well-equipped interior. It also features the large Genio corrugated cargo box, with a carrying capacity in excess of 1,000 kg. Adding further appeal is a package of extras including a front bull bar, rear bumper, side steps, a front cab-mounted roll bar and a rear, tailgate-side roll bar.

An independent, double-wishbone front suspension, coupled to a leaf-sprung rear suspension, delivers an optimum combination of car-like ride quality and cargo carrying capacity. The spacious cabin is also more reminiscent of a car than a utility vehicle.

Style factor

The two individual seats feature comfortable, durable cloth upholstery, while the dashboard is home to a full complement of instruments. The white-faced dials are ergonomically grouped together in a binnacle ahead of the driver, and clearly visible through the steering wheel. A centre console is fitted with dual cup holders, while a centrally-mounted digital clock is located above the air vents. The centre stack is occupied by a double-DIN audio system incorporating a FM Stereo receiver, CD player, SD card slot and USB flash drive socket. The system is also MP3 capable.

The Genio Plus also features as standard electrically adjustable windows and exterior mirrors, fog lamps, air-conditioning, central locking, and power steering. An ABS anti-lock braking system ensures safe emergency braking.

Power-packed engine

Powering the Genio Plus is Mahindra's mHawk 2.2-litre common-rail turbo diesel engine. The four-cylinder unit has a maximum output of 88kW at 4,000r/min, linked to a torque peak of 290Nm sustained between 1,800 and 2,600r/min. Drive is to the rear wheels via a slick-shifting five-speed manual gearbox.

Combined-cycle fuel consumption is 7.9 litres/100km, allowing an operating range in excess of 900km from the 74-litre fuel tank. Consumption drops to just 7.1 litres/100km during open-road cruising. The CO_2 emissions rating is 210 g/km.

- Added-value Genio Plus joins existing Genio pick-up range
- Combines real utility talent with high comfort levels and eye-catching appeal
- 2,2-litre turbodiesel engine links performance to fuel consumption
- Impressive argo carrying capacity with in excess of 1,000kg retained

Siemens' new lightweight aero-derivative gas turbine for oil and gas industry

Siemens has launched lightweight aero-derivative gas turbine RB211-GT30 for the offshore oil and gas industry.

The combined expertise of **Rolls-Royce Energy** and **Dresser-Rand**, which supplied a significant share of the 20MW to 40MW offshore power generation on FPSOs worldwide, will offer better solutions for the offshore market. The Industrial RB211-GT30 is the union's first product. Siemens Distributed Generation Business Unit strategy and portfolio management head Thomas Flommersfeld said, "With our Industrial RB211-GT30, we are introducing a new benchmark in power generation solutions for the oil and gas industry, especially for FPSOs."

The package has a new lightweight construction that is 30 per cent smaller and lighter than its predecessor - RB211. It is designed specifically for offshore duty, with a three-point base mount and torque tube design. The package has been optimised to facilitate safe maintenance and reduce down time, even in challenging offshore conditions. The complete gas turbine can be removed from either side of the package and exchanged in less than 24 hours, due to an innovative rail system built into the package itself.

The new Industrial RB211-GT30 gas turbine

The auxiliary systems are functionally unchanged, but have been optimized to improve maintenance access and maximise online maintenance while the unit is running.

The new gas turbine requires no gearbox and drives a two-pole AC generator at either 60Hz or 50Hz.

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