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Europe €10, Ghana C1.8, Kenya Ksh200, Nigeria N330, South Africa R25, UK £7, USA $12

African Review

of BUSINESS and TECHNOLOGY

June 2015

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Editor's Note

The prospects for various business sectors in Mozambique, Ghana and Nigeria are addressed in this issue of African Review, between pages 20 and 26. In finance, this issue offers appraisals of private banking in relation to the continent's affluent populations, and the use of messaging for mobile finance, between pages 28 and 33.

The Cloud technology that is increasingly underpinning today's sophisticated solutions for South Africa's retail sector is covered on page 34.

From page 38 to page 50, this magazine is all about power, with articles on transmission and distribution, on the use, performance and maintenance of generator sets, and of the economic value of gas plants and associated infrastructure.

Environmental concerns area dressed on pages 52-54, with respect to waste management.

Construction is covered from page 56 to page 70, with features and briefs on various forms of construction equipment and technology, in acquisition and rental, and the application of equipment in Southern African scenarios.

Key considerations with respect to power for mining operations is appraised across pages 72 to 75, in terms of the example of a copper mine in the Democratic Republic of the Congo.

This month's Solutions extend from our coverage of the recently-held Intermat event, with innovative equipment and services showcased from page 76 to 78.

Andrew Croft, Editor

Main cover picture: Coralynne Heavy Lifting
Inset, bottom left: Michael Jung
Inset, top right: Curro Schools

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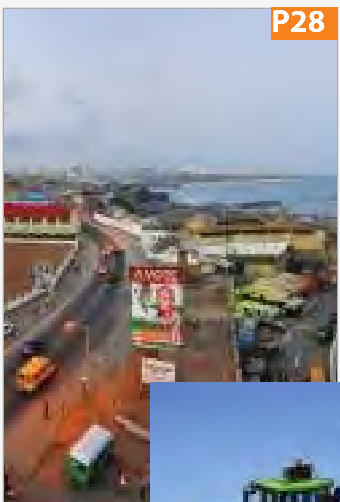

abc
Audit Bureau of Circulations - Business Magazines

African Review
of BUSINESS and TECHNOLOGY

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Chairman: Derek Fordham

Printed by: Buxton Press

Printed in: May 2015

US Mailing Agent:
African Review of Business & Technology, USPS.
No. 390-890 is published 11 times a year for US$140 per year by Alain Charles Publishing, University House, 11-13 Lower Grosvenor Place, London SW1W 0EX, UK. Peridicals postage paid at Rahway, New Jersey. Postmaster: send address corrections to Alain Charles Publishing Ltd, c/o Mercury Airfreight International Ltd, 365 Blair Rd, Avenel, NJ 07001.

ISSN: 0954 6782

Alain Charles Publishing
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Agenda / North

TIB goes live on ICS Banks

Tunis International Bank (TIB) has gone live on the ICS Banks solution developed by **ICS Financial Systems Limited (ICSFS)**. TIB replaced the legacy system, as the main requirements for the bank were a fully-fledged bank -in- a- box solution that provides a full range of modules and incorporates a flexible group model.

TIB managing director Mohamad Fekih said, "We are delighted that TIB has successfully gone live with ICS Banks. The solution will enable the bank to serve its rapidly-growing customer base in Tunis with a state-of-the-art core banking system. TIB has implemented ICSFS' solution to offer modern products through the use of the newly applied suite of applications that cover core banking, remittances, credit facilities and risk groups, lending, trade finance, and treasury and Investment systems, in addition to giving our customers the possibility of securely interacting with the new system through the Internet."

ICSFS managing director Robert Hazboun commented, "ICSFS is expanding its footprint across North Africa, where it already exists in Algeria, Egypt, Libya and Tunisia. Our solution is currently licensed to more than 80 banks and financial institutions, demonstrating its reliability and suitability globally. We are delighted that TIB has entered into live production with ICS Banks and we look forward to support the bank through all future phases of growth."

Robust prospects in MENA regions

EMPEA has released a special report on 'Private Equity in the Middle East and North Africa' - its first in-depth, comprehensive look at the asset class in a richly diverse region that has historically been viewed more as a source of capital than as a destination for funds. The region's macroeconomic strength is driving a number of private equity opportunities - with a US$3.3tn economy, the Middle East and North Africa is one of the larger emerging market economic blocs and will be the third-fastest growing region in the world in 2015 according to the **IMF**. In addition to strong projected growth at home, local companies are benefiting from greater regional integration and strengthening ties with Sub-Saharan Africa and developed markets. Of the US$45bn raised for emerging market private equity funds in 2014, only 2.4 per cent went to fund managers dedicated to the Middle East and North Africa, as investors continued to cite concerns over political risk and a limited number of established local players. While the region's nascent private equity industry has undoubtedly faced a bumpy ride, this report argues that investors who continue to ignore the Middle East and North Africa risk missing out on attractive investment opportunities backed by strong management teams.

Arabic economic challenges

The **World Bank** Economic Monitor for the Middle East and North Africa (MENA) expects GDP regional growth to remain flat at 3.1 to 3.3 per cent for the rest of 2015 and for 2016. The report finds that gobernment, oil, and economic reform, in particular, all need to be addressed. The average growth rate hides variation in different countries' economic prospects, however. According to Hafez Ghanem, World Bank regional vice president for MENA, "A third of MENA countries - oil importers - will grow at about 4 percent in 2015, buoyed by some policy reforms, notably in Egypt and Morocco, as well as low oil prices."

Economic growth in oil exporters, however, is plummeting. Those mired in conflict, such as Iraq and Libya, are likely to see economic contraction this year. The **Gulf Cooperation Council (GCC)** countries are expected to lose about US$215bn, or 14 per cent of their combined GDP, from lower oil prices this year.

Better housing, better banking in Egypt

A US$500mn project is set to improve access to homeownership and rental units for low-income households in Egypt. The Egypt Inclusive Housing Finance Programme will reach 3.6mn people, including an estimated 1.6mn beneficiaries living below the poverty line. It will also contribute to generating an estimated 1.5mn construction jobs over a five-year period.

This is a **World Bank**-financed operation, and the first of the Bank's undertakings to use a new results-based financing instrument, which can disburse directly against benchmarked milestones as well as strengthen the Social Housing Fund's systems and capacity in a sustainable manner.

The programme will assist Egypt's **Ministry of Housing, Utilities, and Urban Development** and the **Social Housing Fund** in setting up sectoral policies that will enhance transparency and accountability, notably through the establishment of monitoring and evaluation systems, an internal audit, and a grievance redress mechanism.

The Social Housing Fund extends financial support to Egypt's low-income households to enable access housing finance and utilises vacant and unfinished units. The project will assist in developing incentives for private rental investors to rent out their units to low-income tenants.

"The project will foster economic inclusion and sustainable growth through promoting access to adequate housing for the bottom 20 percent of Egypt's population," said Poonam Gupta, World Bank acting country director for Egypt. Moreover, it will contribute to increasing private sector participation in the low-income formal housing market in Egypt."

According to the World Bank, Egypt needs approximately 300,000 new units per year to house newly formed households, plus an additional 254,000 units to deal with the backlog.

Agenda / East

SEFA supports private sector in Mozambican renewable energy

The **Sustainable Energy Fund for Africa (SEFA)** has approved a US$740,000 technical assistance grant to the **Government of Mozambique** to enhance the enabling environment for private investments in the country's promising renewable energy sector. Specifically, the new SEFA grant will support the implementation of the country's feed-in tariff regime for small and medium renewable energy projects, through the provision of standardised power purchase agreements, guidelines for grid connectivity and investor guidelines for prospective developers. The grant will additionally lay the foundations for a mini-grid regulatory framework, with special focus on designing a tariff structure and corresponding technical and environmental regulations, as well as providing capacity-building and awareness-raising activities for national and local representatives.

Abundant renewable energy sources in Mozambique still remain untapped in a country where only 33 per cent of the population has access to electricity. The country's significant hydro potential, mainly along the Zambezi River, is estimated to be approximately five times the actual installed capacity; the largely untapped solar potential is promising across most of the territory; there is large biomass potential from agricultural waste, in particular from rice husk in Quelimane; there is considerable wind resource in the southern parts of the country; and geothermal energy has good prospects in the northern provinces given their proximity to the East African Rift Valley.

After the approval, Joao Duarte Cunha, SEFA coordinator at the **African Development Bank (AfDB)**, stated, "This SEFA project will play a key role in unlocking investments in small-scale renewables, particularly in rural areas where needs are greatest. This will certainly improve energy access for households and businesses while reducing dependence from large-scale hydro and upcoming coal and gas projects."

UNWTO backs Kenyan tourism

During a recent visit to Kenya, **UNWTO** Secretary-General Taleb Rifai highlighted the economic importance of the country's tourism sector, and conveyed his confidence in its strong resilience.

"Kenya is a true tourism success story and a long-term tourism leader, not only in Africa but globally. Over the years, the Kenyan tourism sector has become a backbone of the national economy and demonstrated a remarkable capacity to recover and regain momentum, which is why I have full confidence in its ability to bounce back even stronger. The world must hear from Kenya now. Kenya, with Africa, will move forward", said Mr Rifai, who met with the President of Kenya, Mr Uhuru Muigai Kenyatta, to explore further areas of cooperation between Kenya and UNWTO, as well as the importance of domestic tourism, increased regional cooperation, and the need for more precise travel advisories.

Africa Sugar Outlook highlights cane quality

The Africa Sugar Outlook Conference, held in Nairobi, Kenya, co-hosted by the **Kenya Sugar Directorate**, welcomed hundreds of participants and key speakers, including governmental representatives, international experts, senior decision makers and industry leaders from Africa, the Middle East, Europe, Brazil, and Australia. The event explored future opportunities for the African sugar market, discussed new trade and financing strategies, and shared best practices and latest innovations in sugar production.

As the originator of sugar cane harvesting technology and a world leader in sugar cane harvesting solutions, **Case IH** was Gold Sponsor of the event for the fifth year in a row. The company, in collaboration with its distributor in East Africa, **Toyota TUSHO**, displayed outside the main conference hall a representative selection of its Farmall and JX compact tractors, including four Farmall A units from 110hp to 140hp, one Farmall 100 JX, and a JX90 tractor.

Patrice Loiseleur, Case IH international agriculture projects and corporate farming manager, took part in the conference proceedings with a presentation of the full Case offering for sugar cane production. Focus was on the multipurpose Puma CVT Series tractors, which are the ideal solution for cultivation and road haulage, and on the key advantages of Case IH Austoft 8000 Series of sugar cane harvesters. Loiseleur also highlighted the importance of the first class and dedicated service support offered to customers by Case IH and its network.

Agenda / South

Africa's oil and gas agenda to be addressed in Cape Town

The 2015 Africa Oil Week is set to provide rich content and high-quality networking opportunities that will shape the future for oil and gas professionals working in the Continent.

Global Pacific & Partners and **ITE Group plc** organises this 22nd anniversary Africa Oil Week alongside the 2015 Africa Upstream Conference, covering oil, gas-LNG and energy industries from 26 to 30 October 2015 in Cape Town, South Africa. The event is also co-located with the 13th Africa Independents Forum, the 17th Scramble for Africa: Strategy Briefing, and the four-day Africa Upstream event. There will be over 120 presentations, with parallel session forums on oil & energy finance, exploration technologies, local content and young professionals in Africa. The Safari Park Exhibition will be held over five days, with over 166 stands and exhibitors.

Confirmed governmental speakers include: The Hon Gabriel Mbaga Obiang Lima, **Ministry of Mines, Industry & Energy of Equatorial Guinea**; Theo Ahwireng, **Petroleum Commission of Ghana**; Pamela Quanrud, **US Department of State**; Serge Ndeko, **Ministry of Hydrocarbons, Republic of the Congo**; Hajatiana Rasolomanana, **Ministère des Mines et des Hydrocarbures, Madagascar**; HE Minister Hussein Abdi Dualeh, Minister of Energy & Minerals, **Ministry of Mining, Energy & Water Resources, Republic of Somaliland**; Bernard Bizimana, **Ministry of Energy & Mines, Burundi**; Dr Ketsela Tadesse, **Ministry of Mines, Ethiopia**; Ernest Rubondo, **Directorate for Energy & Minerals, Uganda**; Immanuel Mulunga, **Ministry of Mines & Energy, Namibia**; Hudson Andambi, **Ministry of Energy, Kenya**; and Fred Kabanda, **Directorate for Energy & Minerals, Uganda**. Corporates represented include: **Glencore Xstrata**; **Tullow Oil**; **Shell International Exploration & Production BV**; **Total E&P**; **ExxonMobil**; **Sonangol**; **BP**; **Maersk Olie OG Gas**; **Addax Petroleum**; **Galp Energia**; **BG Group**; **OMV E&P**; **Africa Oil Kenya**; **Cairn Energy**; **VAALCO Energy**; **FBN Capital**; **Global Pacific & Partners**; **Schlumberger**; **KPMG**; **Lonsa Capital**; **ERHC Energy**; **Africa Energy Corp**; **Sterling Energy**; **Regalis Petroleum**; **Wentworth Resources**; **Madagascar Oil Limited**; **PetroScheyelles**; **Preng & Associates**; **FirstEnergy Capital**; **African Development Bank**; **PVE Consulting**; **Chevron Africa & Latin America E&P Company**; **Oando**; **Total**; **CNOOC Uganda**; **ENH**; **Oryx Petroleum**; **Pura Vida Energy**; **Statoil**; **Pluspetrol**; **Woodside Energy**; **CGG**; **Afex Global**; **International Energy Solutions**; **Petrosen**; **Gabon Oil Company**; **PetroSA**; **Petrofund**; **ACAS-LAW**; **Petrolin**; **Centurion**; **Sasol**; **Petro-Logistics**; **Salama Fikira**; **CAMAC Energy**; **Jacobs Engineering**; **Hess Corporation**; **Heritage Oil**; **ENI**; **PGS**; **Noble Energy**; and **Kosmos Energy**.

Atlas and Amplo form partnership

Learning technologies firm **Atlas Knowledge** and its strategic partner **Amplo Development Services** are committed to bring internationally certified construction, commercial and oil & gas training to the burgeoning South African and Namibian energy industries. The alliance responds to demand for accessible, affordable training in rapidly-developing energy regions. With certified training a pre-requisite to enter the industry, it will make specialist e-learning training and qualifications more readily accessible to South African and Namibian nationals working in the sector, as well as new entrants.

Amplo's first two authorised training centres have been certified to deliver in excess of 1,000 e-learning courses, as well as OPITO-certified invigilated training such as International Minimum Industry Safety Training (IMIST) and Authorised Gas Testing (AGT), as well as Safety English Test (SET).

V&A Waterfront lauded for energy efficiency

In a double coup for the **V&A Waterfront** in Cape Town, South Africa, the **Green Building Council of South Africa (GBCSA)** has awarded both Victoria Wharf and the property's BP Building four-star 'Existing Building' ratings, reflecting thebuildings' highlevel environmentally-friendly and sustainable operating efficiency.

Victoria Wharf and the BP Building join the Silo District's No. 1 Silo, which was awarded South Africa's first ever six-star 'As Built' rating in 2014, making the V&A Waterfront possibly the greenest precinct in Cape Town.

The V&A Waterfront's Victoria Wharf is the first shopping centre in South Africa to be awarded a four-star green rating

"Sustainability is an integral part of operations at the V&A Waterfront, and we are committed to leadership in sustainability practices in both our future and current development plans. We are thrilled with the addition of Victoria Wharf and the BP Building to our greenrated buildings because we believe it shows follow through on our environmental promises, and our genuine commitment to leaving a sustainable legacy for future generations," said David Green, CEO of the V&A Waterfront, which houses the bulk of retail trade at the Waterfront in 70,000 m2 of floor space.

Agenda / West

Ceona, Seaweld join up in Ghana

Ceona's flagship vessel, the Amazon, is specifically designed for deepwater markets including West Africa

Subsea Umbilicals, Risers and Flowlines (SURF) contractor **Ceona** has entered into a significant joint venture (JV) with **Seaweld Engineering**, which will act as a strategic partner for offshore deepwater construction projects in Ghana. The JV allows Ceona to extend its operations in West Africa and build upon the success it has already achieved in the region. The agreement will see Seaweld Engineering supporting Ceona in delivering its full line of products and expertise in Ghana. The companies have been working together since late 2014 and the JV was officially registered by the Petroleum Commission in Ghana in March 2015.

As part of Ceona's growth plans, the company has opened an office in Accra as well as taking on a further office and yard space in Takoradi.

The Amazon's VLS tower, as seen from the aft wheel

Mark Preece, Executive VP commercial and business development at Ceona, said, "It was important for us to find an experienced and respected partner to support our move into Ghana as we increase our growing geographical footprint across West Africa.

"Seaweld Engineering is well known in the country and has a wellearned reputation for the high quality of its work in oil & gas. The JV will complement both companies as we offer our combined strengths to clients requiring specialist support in deepwater construction operations."

Seaweld Engineering is headquartered in Takoradi and is a specialist in steel fabrication for the oil & gas industry. Established in 1979, Seaweld provides a flexible and wellresourced inspection, repair and maintenance service. The company has over 20 years of experience in the fast developing oil & gas production fields of West Africa and other areas of the world. Last year, the company received the prestigous Indigenous Oil & Gas Company of the Year 2014 at the Ghana Oil & Gas Awards.

Ceona's flagship vessel, the Amazon, which is specifically designed for deepwater markets including West Africa, is a unique field development vessel built with the capability to operate in multiple pipelay and operational modes, changing from rigid to flexible pipelay within a week. Designed to operate independent of spoolbases, the Amazon is ideal for projects in Ghana where spooling operations create long transit requirements and increased costs.

Tizeti launches WiFi-based content service

Wireless Internet service provider **Tizeti** its US IP Address over Wifi service in Lagos, Nigeria. Nigerians can now browse and stream content previously not available to them at an affordable price - its current introductory rate is N1,500 (US$7.50) a month.

Tizeti's fixed wireless broadband network delivers high-speed Internet access supporting VoIP, VPN and IPTV services. The company currently serves multi-tenant buildings of all sizes in Lekki, Ikoyi and Ikeja. Now, Tizeti will provide access to thousands of sites previously not available to Nigerians using their current Internet service providers (ISPs). Users will be able to connect any WiFii enabled tablet, smart TV, IPTV, game console, set top box and phone to the teleport WiFi router to obtain a US IP Address. The teleport router offers 50 per cent more WiFi coverage than the stock WiFi routers currently provided by ISPs and will provide access to other WiFi-based services Tizeti will roll-out in the future.

Edio Ogwu, Tizeti's general manager of sales, said, "Teleport US IP wifi router offers a platform for our customers to experience our wifi capabilities and also provide access to thousand of streaming channels available to them. We expect the teleport router to be widely adopted by Nigerians looking for alternatives to the rising cost of satellite television service."

Ifeanyi Okonkwo, general manager of operations at Tizeti, added, "The teleport launch presents an opportunity for Tizeti to develop its first WiFi based product as the US IP Address over WiFi was next in our wifi roadmap given the success we enjoyed while providing unlimited internet service over wifi in Lagos. Tizeti has shown again that the company has technical depth and resource to successfully deliver WiFi-based products and services in Nigeria."

Events / 2015

July

30 June-1 July
AfricaRail
Johannesburg, South Africa
www.terrapinn.com

30 June-1 July
Africa Ports & Harbours
Johannesburg, South Africa
www.terrapinn.com

30 June-1 July
Aviation Festival
Johannesburg, South Africa
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30 June-1 July
The Cargo Show Africa
Johannesburg, South Africa
www.terrapinn.com

30 June-1 July
Transport Security & Safety
Johannesburg, South Africa
www.terrapinn.com

15-17
Distributech Africa
Cape Town, South Africa
www.distributechafrica.com

15-17
Mediatech Africa
Johannesburg, South Africa
www.mediatech.co.za

15-17
Power-Gen Africa
Cape Town, South Africa
www.powergenafrica.com

22-24
FESPA Africa
Johannesburg, South Africa
www.fespa.com

August

6-10
100% Design South Africa
Johannesburg, South Africa
www.100percentdesign.co.za

20-23
Kenya Building Week
Nairobi, Kenya
www.kenyabuildingweek.com

22-24
Buildafro
Dar Es Salaam, Tanzania
www.africanfairs.com

27-28
EAPIC
Nairobi, Kenya
www.eapicforum.com

SARPD Oil CEO acknowledged for contribution to African economic growth

The CEO of **Société Africaine de Recherche Pétrolière et de Distribution (SARPD OIL)**, Claude Wilfrid Etoka, has been acknwledged for his business leadership with the award of 'Africa Economy Builder' during a ceremony held recently in Abidjan, Côte d'Ivoire.

The award ceremony was chaired by Donald Kaberuka, President of the **African Development Bank**, and was attended by nearly 300 African business leaders.

Prior to the ceremony, the 6th edition of the African Economic Builders Forum took place, addressing the challenge of sustainable and inclusive growth facing the private sector in Africa. During the forum, representatives from the private and public sector as well as non-governmental organisations (NGOs), discussed issues related to the development of African economic champions that would contribute substantially to increase African growth and reduce poverty.

Debates also covered how to reconcile the imperatives of economic efficiency and social solidarity, how to strengthen human capital and help businesses to thrive, how to encourage the development of ambition-driven African champions, how to bolster women's entrepreneurship and other business related topics.

Claude Wilfrid Etoka and Donald Kaberuka

Commenting on his distinction by the committee of the **Builders of the African Economy**, Mr Etoka dedicated the prize to his home country, Congo, and to "the youth of Congo which I hope will contribute to the economic rise of the nation".

Mr Etoka also thanked "the men and women of SARP OIL, who are dedicated at providing to our worldwide clients the best service possible" and he finally praised the clients and partners of his oil trading company, which is amongst the top five in its sector in Africa.

Mr Etoka founded SARPD OIL in 2004, driving the company to become one of Africa's leading oil trading firms. The company is based in Morocco and has a trading desk in Geneva, Switzerland.

Bulletin / Industry

Zambian Breweries set to open $32mn factory on schedule

A subsidiary of **SABMiller Group**, **Zambian Breweries** is on course to start operations at its US$32mn malting plant in the Lusaka South Multi Facility Export Zone (MFEZ) in the first quarter of 2016; the company's investment in the plant is part of the group's

Zambia's Deputy Minister of Finance, Hon Christopher Mvunga, recently inspected construction of the US$32mn Zambian Breweries malting plant

wider commitment to long-term investment in Zambia, which would be extended further depending on the group's profitability, explained Zambian Breweries corporate affairs director Ezekiel Sekele.

West African aviation industry set to continue strong growth

The Nigerian Commercial aviation industry has contributed about US$700mn to the Nigerian economy, with projected investment of US$12bn in the short and medium term expected to lead to passenger' growth to between 12 and 25 million by 2018, after Nigerian passenger traffic for inbound and outbound destinations soared to 21mn in 2014, surpassing the 2013 record by over 20 per cent; Melanie Humphries, head of aviation finance for Africa at **Investec**, has observed, "Poor regional connectivity and limited infrastructure means that air travel is still the preferred mode of transport for passengers and cargo, presenting an opportunity for the aviation industry in Nigeria and Africa as a whole - in fact, business jets in Africa, and the access, predictability and passenger safety they provide, are playing a critical role in realising the continent's growth potential

A global showcase of used technology for reuse

Held in April 2015 in Karlsruhe, Germany, **USETEC** supported by **RESALE** offered a premier global showcase of used technology attended by a total of 313 exhibitors and 5,142 visitors from 92 countries, featuring machines for every sector of industry.

More than 80 per cent of visitors were satisfied with their stay. Over half either purchased equipment during the fair or are planning to do so later. USETEC's partner associations were also enthusiastic about the event's 2015 edition. "Visitor quality was excellent," said Kurt Radermacher, managing director of the **Association for Machine Tooling + Tools (FDM)**.

Significant nterest from international visitors

The high proportion of international visitors and exhibitors continues to be USETEC's trademark. Over two-thirds of buyers travelled to the event from abroad. Of these, 37 per cent were from Europe and 63 per cent from outside Europe - including Africa (26 per cent), the Middle East (20 per cent), and South, East and Central Asia (16 per cent). A 20-person delegation from Ghana was among those to

USETEC exhibitors confirmed the positive trend in the used machinery market

attend USETEC before travelling on to Hannover the following day.

"All the members of the delegation are active in the private sector," says Patrick Martens from the **Delegation of German Industry and Commerce in Ghana**, who organised the trip. "There were participants from a number of different sectors, including printing, catering and energy."

These included members of the country's largest conglomerate from the waste disposal sector, the **Jospong Group**.

"Demand from the continent is growing, albeit from a lower level," remarked Gregor Wolf, managing director of the **Federation of the German Export Trade (BDEx)** in Berlin. He attributed this to the economic reforms being implemented - for example, in sub-Saharan African countries such as Kenya or Ethiopia.

Mr Wolf believes the opportunities, especially for suppliers of used machinery, are very good. New machines are often difficult or impossible to operate in African countries and also in many cases do not match the real need. "Most African customers want robust machines that work well under even the most challenging conditions," Mr Wolf said. "For example, in many cases it is more important that a machine has its own power supply rather than lots of high-tech features because the electricity grid is not always reliable."

Bulletin / Industry

Bottle-2-Bottle plastic recycling plant opens in South Africa

The first **Bottle-2-Bottle** recycling plant in Africa, representing an investment of R75mn (US$6.2mn) and the capability to produce resin that will be suitable for the carbonated drink sector, has been officially opened by South Africa's Minister of Environmental Affairs, Edna Molewa, in Wadeville, Johannesburg, at a ceremony attended by notable guests from government and the polyethylene terephthalate (PET) industry, including **Coca-Cola Southern Africa** president Therese Gearhart, **Extrupet** joint managing director Chandru Wadhwani and representatives from **PETCO**, the industry body for PET recycling in South Africa; Cheri Scholtz, PETCO CEO lauded the milestone for the PET industry and said, "The cooperation within the PET industry to reach a common goal of integrating recycling into product life cycles is showing very notable results - we have reached a point where 49 per cent of all post-consumer PET bottles are currently recycled - no less than 1.5bn bottles were recycled in 2014 supporting 44,000 informal income opportunities in PET collection."

Italian waste and recycling workshops held at INDUTEC

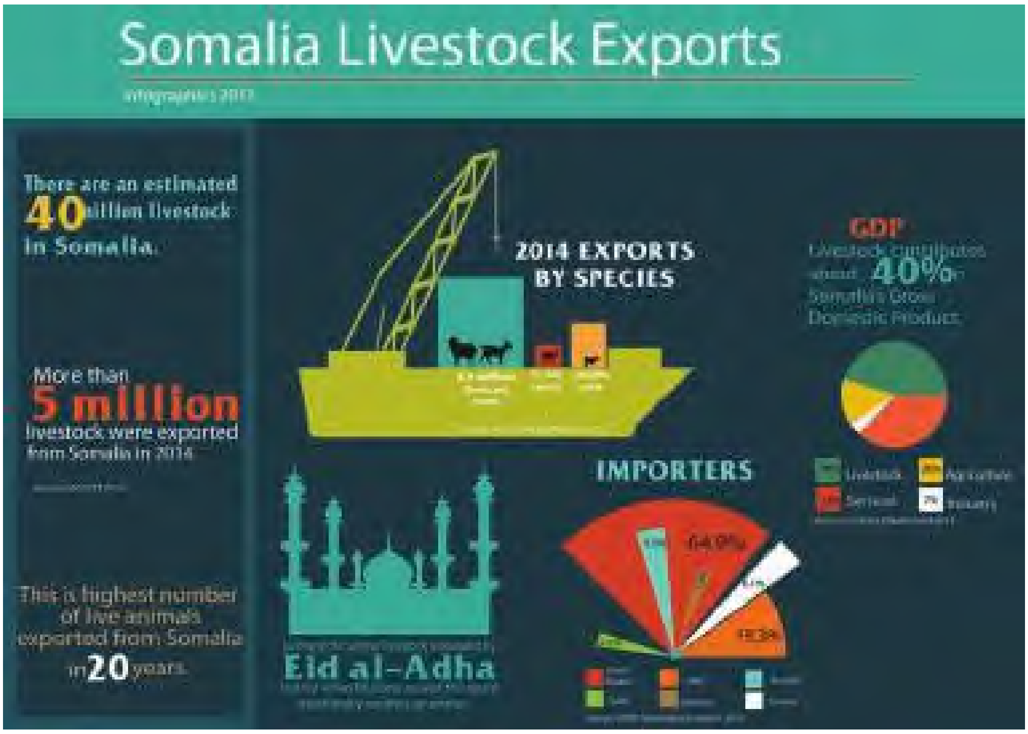
Recycling specialist **Ecomondo Italy** introduced its waste and recycling workshops for the first time at Waste and Recycling Africa, part of the recently-held SA Industry and Technology Fair (INDUTEC) to inform African delegates of current European practices in waste management and recycling; two-hour workshops were held each day, presented by expert speakers in various fields of waste and recycling technology.

Bayer South Africa showcases sustainable science at NAMPO

An exhibitor of over 20 years standing, **Bayer South Africa** used 2015 NAMPO Harvest Day to highlight its mission of Science for a Better Life; Klaus Eckstein, CEO for Bayer South Africa, said, "During the next few years as development across Africa increases, so too will opportunities for investors and solution providers involved in the agriculture and healthcare industries, but as an industry collective, we need to start thinking differently and innovatively so that we can create a better, healthier future for all."

Bulletin / Agribusiness

Record livestock exports boost Somalian trade with Gulf states



Somalia exported a record five million livestock to markets in the Gulf of Arabia in 2014 - the highest number of live animals exported from the country in two decades - following heavy investment in animal disease prevention backed by the European Union and the United Kingdom; the export data, collected by the Food Security and Nutrition Analysis Unit (FSNAU) of the **Food and Agriculture Organisation of the United Nations (FAO),** indicates that Somalia exported 4.6mn goats and sheep, 340,000 cattle and 77,000 camels in 2014, worth an estimated US$360mn.

IPA acknowledges livestock production research

At a ceremony hosted by the **African Innovation Foundation (AIF)**, in collaboration with the **Moroccan Ministry of Industry, Trade, Investment and Digital Economy** in Skhirat, researcher Adnane Remmal was announced winner of the Innovation Prize for Africa (IPA) 2015 Grand Prize, scooping the US$100,000 cash award. This was a fitting tribute to an extensive research process, providing African farmers with a solution to improve livestock production whilst taking into account consumer health needs.

Alex Mwaura Muriu of Kenya won Second Prize, and South African, Lesley Erica Scott was awarded the Special Prize for Social Impact, receiving US$25,000 respectively.

Remmal impressed the expert panel of judges, competing with 10 excellent African innovations spanning the health, environment, technology and agricultural sectors. His innovation, a patented alternative to livestock anti-biotics is set to transform the broader medical and agricultural sector in Africa. The natural innovative anti-microbial formula reduces health hazards in livestock, preventing the transmission of multi-resistant germs and carcinogens to human beings through consumption of milk, eggs and meat.

Remmal said, "My innovation provides farmers with solutions to improve their production; it is cost effective and can be easily adopted, giving farmers increased benefits without the side effects of anti-biotics."

Murui, a Kenyan entrepreneur, developed a system to meet the perennial challenge faced by African farmers in accessing capital to finance planting and harvesting by providing an alternative from the burden of financial loans through his Farm Capital Africa project.

Adnane Remmal (right) IPA 2015 winner, with the Ministry of Industry, Trade, Investment and Digital Economy officials and AIF founder Jean-Claude Bastos de Morais (centre)

Today, TB is second only to HIV and AIDS as a leading cause of death in the continent. Using the Smartspot TBCheck, Scott, a South African scientist, has developed an effective World Health Organization (WHO) approved calibration method for TB diagnostic machines.

Innovation is a national priority in Morocco, one of the countries leading the innovation frontier in Africa – a strategic location for IPA 2015, and well known for hosting other successful events such as the Global Entrepreneurship Summit. In his welcome remarks, Moroccan Minister of Trade, Industry, Investment and the Digital Economy, Mr Moulay Hafid Elalamy emphasised, "Innovation and development, as well as technological innovations must be leveraged for the continent, given that these are major value creations and key ingredients for competitiveness."

Bulletin / Agribusiness

Syngenta advises on South Africa agro-economy

Currently, South Africa is experiencing the worst generalised drought since 1992, one that could wipe out many farming livelihoods, damage the country's rural economy and reverse nearly all the inflation benefits bestowed by the low oil price.

Antonie Delport, managing director, **Syngenta South Africa**, observed recently, "It's expected that the failure of SA's summer crop to be even more severe than in 2007. To make things worse, the Rand/Dollar is also at an all-time low, which just adds to the woes of the difficult times commercial growers are facing."

The reality of this situation is that major crop losses are going to have a dramatic impact on commodity prices. Commercial growers therefore need to be prepared, and not just for the next harvest, but until 2016, and even beyond.

Manfred Venter, agricultural economist at Syngenta, said, "According to Grain South Africa, what is concerning is that in most parts of the country the crop damage is already 40 per cent and edging towards the 60 per cent mark, and growers are only able to make a small profit if any profit can be made, inspite of high maize price levels. The impact of the drought will be felt for two seasons to come with a possibility of a greater shift from high capital intensive crops, like maize towards lower capital intensive crops like soybeans."

According to Delport, it's all about productivity and optimal yield management. He said, "Now, more than ever before, the agriculture sector must stand together as an industry. We must be open minded in finding solutions and what the best practises are. We've been through this before, and by standing together we can get through it again. The average age of South African growers currently is 65, which means their experience and mentorship roles are crucial to develop young growers – this will enable them to address the challenges our agricultural industry faces."

Syngenta advises that the future of agriculture should be shaped rather than left to chance and that's why it launched its Grain Academy leadership programme in 2013. Delport commented, "This is the way forward, equipping our young growers with skills to manage diversity and lead the industry is vital in optimising our agricultural productivity, especially in challenging times as we're experiencing now. The future of sustainable production lies in our competitiveness and it can only be improved with ongoing leadership and entrepreneurial capacity development."

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

Building Energy wins new South African contracts

Building Energy has won two new contracts to develop renewable energy projects in South Africa.

The Italian group, which specialises in clean, sustainable power generation, will develop two power plants – a wind-powered plant and a hydro-powered plant.

A 140MW wind farm will be constructed in the Roggeveld area, located between the Northern and Western Cape Provinces, and will have a capacity of 590GWh per year, the company said.

The 140MW wind farm in Roggeveld will produce 590 GWh per year (Photo: Flominator)

www.africanreview.com/energy-a-power

Botswana's top three banks record profit increase

The largest three banks in Botswana have recorded an overall rise in their non-interest incomes.

The positive financial results from Barclays, First National Bank (FNB) and Standard Chartered came in spite of a cap on banking charges imposed by the Bank of Botswana (BoB) in January 2014.

It was feared that the two-year moratorium on fee increases will push financial institutions into the red by eating into their non-interest income, at a time when interest-related profits were suffering due to the low-interest environment in the country.

www.africanreview.com/finance

Equatorial Guinea agrees Chinese investment deals

Equatorial Guinea has secured a wave of Chinese investment, following a trade forum in Dalian.

The Equatorial Guinea-Asia Economic Forum was hosted in the north-eastern Chinese city by representatives of the West African nation's Ministry of Mines, Industry and Energy, with the aim of showcasing the country's investment opportunities.

Six MoUs were signed in total, including deals for the development of industrial cities at Luba and Mbini (Photo: M&J Kotsopoulos/Flickr)

The Equatorial Guinean government has since announced the signing a series of memoranda of understanding (MoUs) with Chinese firms covering in the industrial and power sectors.

www.africanreview.com/construction-a-mining

GE appoints Clarke Energy as diesel engine distributor

UK-based Clarke Energy has signed an agreement with GE's Distributed Power business to be its first authorised diesel sales and services distributor for stationary power generation in Nigeria, Australia and India.

According to GE, the agreement comes the company continues to rapidly expand its engines technology offerings. In 2014, GE's Distributed Power business introduced its new 2.6 MW 616 diesel engine and also integrated GE Transportation's 228 and 250 diesel engine product lines for stationary power generation into its growing diesel engine portfolio.

www.africanreview.com/energy-a-power

RLE and KMC to begin manufacturing cars in Uganda

RLE International has agreed to provide consultancy services for Kiira's Ugandan manufacturing operation. The global engineering firm revealed it had agreed a deal with Ugandan automotive manufacturer Kiira Motors Corporation (KMC), to assist with the launch of local vehicle manufacturing in the country.

Kiira is aiming to become "the first true East African automotive manufacturer" (Photo: Frederic Legrand - COMEO)

Under the agreement, RLE will provide "a broad array of business development, engineering and integration support" to KMC, which aims to produce affordable vehicles for the African consumer market.

www.africanreview.com/manufacturing

Kenya Power receives loan expansion facility

Kenya Power company has acquired a US$10mn loan facility from the United Bank of Africa (UBA) to upgrade its infrastructure to distribute 5,000MW by 2017.

According to Kenya Power, this is part of a syndicated loan from a number of lenders to finance the planned infrastructure expansion by the firm, the country's sole power distributor.

The financing will be used to boost the capacity of transmission lines, upgrading existing substations and constructing 37 new ones, while also installing new equipment in the power grid.

"Completion of these capital investments on time is critical for long-term viability of our company. It will also make Kenya attractive as an investment destination," said Ben Chumo, Kenya Power managing director.

www.africanreview.com/energy-a-power

Midal adds value to aluminium industry

A new plant next door to Mozal 's huge smelter will produce forex savings in electrical conductors amongst other products

The OPEC Fund for International Development reports from Austria that its first private-sector investment in partner country Mozambique will be commissioned within the year at the Parque Industrial Beluluane site on the outskirts of Maputo. A loan of US$12mn was specially arranged by the oil exporters' fund to complete the processing facilities. A brand new factory designed to turn out finished aluminium rods, wires and flexible cable conductors - total combined output 50,000 tons each year - is being built by Midal Cables International Ltda right next door to the existing and highly profitable aluminium smelter and ingot facility in Matola District operated by Mozal. This is already the country's largest single industrial enterprise, one which is already credited with earning nearly a third of Mozambique's total foreign exchange.

Consuming only a fraction of Mozal's total smelted output most of the fabricated products will be used for the production of high-performance conductors for the efficient transmission and distribution of HV electrical power by the local utility EDM. Aluminium's low mass and high conductivity means that the design and erection of the transmission towers needed to support such HV cables is much easier than when copper conductors are installed above ground.

A profitable operation

The international Midal aluminium group is headquartered in Bahrain, and similar fabrication facilities are already in very profitable operation in Australia, Saudi Arabia and at other locations. The new factory will be Africa's leading source of these quality-assured materials for further local processing. Supported by the OPEC Fund (usually known as OFID and a supplier of development assistance and services elsewhere in Africa), its opening will signify a real breakthrough in Mozambique's plans to step up both job creation and value adding as complements to the successful operation of a world-scale bauxite smelter. Recently expanded, this has a total nameplate capacity of 580,000tpa, nearly all of which has so far been exported to a consumer world hungry for packaging, conducting and fabrication/cladding/strengthening materials used in the construction industry.

An estimated 100 employees will be needed on a permanent basis within the plant once it opens; many of these have already received

The new plant will be next to Mozal's smelter

hands-on training in the Middle East. Up to 500 others are expected to obtain indirect employment, in the form of suppliers of transportation, provision of infrastructure services and the like.

Revenues and investment

OFID director-general Suleiman J Al-Herbish said, "The move from raw materials to manufactured goods will generate significant export revenues and help replace products previously imported from South Asia and the Pacific."

The fund's team of administrators overseas are keen to help promising partner countries such as Mozambique develop their own local value-adding activities, especially if they exhibit the kind of high-growth history and potential based on sound business planning and successful reconstruction after years of emergence from internal conflict, as is evident here.

Mozambique has of course its own very large reserves of natural gas, the basis of successful energy-intensive aluminium smelting, which will be used to underpin downstream foreign direct investments such as Midal's. ■

OFID is at PO Box 995, 1011 Vienna (www.ofid.org or info@ofid.org). Midal Mozambique can be contacted via mzsales@midalcable.com

ESEI gains continued governmental support

Mozambique's newly combined Ministry for Mineral Resources and Energy has agreed to continue its support of the 'EnergyNet Student Engagement Initiative (ESEI), first launched in 2014, which continues to finance students from Mozambique to travel internationally and participate in high level investor briefings, taking advantage of the training programmes provided by the initiative's strategic partners, Norton Rose Fulbright and Aggreko.

Focused on three key principals - Law, Finance, and Engineering - ESEI sources and funds students to travel to international forums so that they can see the bigger picture of Africa's industrial sectors, the impact of the power/access to energy on job creation and Africa's role for global economies as it industrialises and lifts millions of people out of poverty.

Working with water at the Ghanaian border

Developments in multi-lateral economic collaboration have improved, and are improving, water resource management in West Africa

Riparian countries globally, especially those in Africa have the finest opportunity to use international river basins as vital instruments to achieve regional integration and development on the basis of commitment and massive financial contributions.

According to "UN Water Day," there are 276 transboundary river basins in the world (64 transboundary river basins in Africa, 60 in Asia, 68 in Europe, 46 in North America and 38 in South America. 185 out of the 276 transboundary river basins, about two-thirds, are shared by two countries. 256 out of 276 are shared by two, three or four countries (92.7 per cent), and 20 out of 276 are shared by five or more countries (7.2 per cent), the maximum being 18 countries sharing a same transboundary river basins.

The Volta river system basin covers 70 per cent of Ghana

Agreeing on availability

Ghana is well endowed with water resources. The Volta river system basin, consisting of the Oti, Daka, Pru, Sene and Afram rivers as well as the white and black volta rivers, covers 70 per cent of the country area. Another 22 per cent of Ghana is covered by the southwestern river system watershed comprising the Bia, Tano, Ankobra and Pra rivers. The coastal river system watershed, comprising the Ochi - Nawuka, Ochi Amissah, Ayensu, Densu and Tordzie rivers, covers the remaining eight per cent of the country.

Furthermore, groundwater is available in Mesozoic and Cenozoic sedimentary rocks and in sedimentary formations underlying the Volta basin. The Volta Lake, with a surface of 8,500km2, is one of the world's largest artificial lakes. In all, the total actual renewable water resources are estimated to be 53.2bn m3 per year.

Water co-operation agreements are becoming increasingly important and transboundary waters have proved to be a catalyst that, to a large extent, encourages co-operation rather than conflict. By its indispensable nature, freshwater is automatically a powerful tool for genuine co - operation and dialogue. It also means member countries must be committed and well-resourced financially to participate in such all-important agreements.

Indeed, water management challenges need not be sources of tension. It should rather provide a catalyst for co - operation and development. And the means to achieving such a united front are consultations, co - operation and the determination to negotiate with a genuine intention of reaching agreement on the management of shared water resources.

According to Ben Ampomah, Executive Secretary of Ghana's Water Resources Commission (WRC), even though international river basins are vital instruments for regional co-operation, integration and development, in many instances in Africa, in general, and West Africa, in particular, lack of commitment in co-operation or non-existence of legal and institutional arrangements in these shared basins coupled with lack of financial wherewithal greatly undermine the potential benefits to the riparian countries.

Indeed, with the establishment of water basin management organisations, reduction in conflicts associated with transboundary water resources will be reduced.

In 2001, the Economic Community of West African States (ECOWAS) saw the need to establish a Permanent Framework for Co - ordination and Monitoring (PFCM) of Integrated Water Resources Management (IWRM) in West Africa. Consequently, the PFCM has begun promoting new international organisations to guide the management of selected shared river basins within the sub-region.

Committing to partnerships

As indicated by Ghana's Information Services Department (ISD), "One of the first three selected basins is the Comoe - Bia –Tano River Basins system, which Ghana shares with three other riparian States; namely, Burkina Faso, Cote d'Ivoire and Mali.

"A number of key studies have been conducted to inform the establishment process, but have to be submitted for proper scrutiny and acceptance in and among the entire member States."

In fact, Kofi Annan, former UN Secretary - General once said, "Fierce national competition over water resources has prompted fears that water issues contain the seeds of violent conflict. If all the world's peoples work together, a secure and sustainable water future can be ours."

It is even gratifying that recently Ghana and Togo renewed their commitment to implement a project and harvest water from the Volta River and export it from Sogakope in the Volta Region of Ghana to Lome.

It is known as the Sogakope - Lome Transboundary Water Supply Project, and such an initiative has been on the drawing board since 1970. Lack of funds and technical challenges have been contributory factors for its implementation being stalled.

This project will be implemented on a public private partnership basis to reactivate it, which will also ensure the supply of potable water to communities in the southeastern part of Ghana - including Ehie, Denu, Agbozume, Tokor Betsima, Gamadzra Anyako, Klikor, Avoene, Sogakope and Akatsi.

The project will include the construction of a raw water intake facility at Sogakope to draw water from the Volta River for potable water production. A water treatment plant and an 82km water transmission pipeline will also be constructed between Sogakope and Segbe in Togo.

> **"Water co-operation agreements are becoming increasingly important and transboundary waters have proved to be a catalyst that encourages co-operation rather than conflict - member countries must be committed to participate in such all-important agreements"**

The feasibility study will last for 14 months, and has already begun in January 2015 under the auspices of the African Development Bank (AfDB).

According to UNICEF, over 748mn people around the world, just obtaining the essential service of safe drinking water, remains a challenge.

Sanjay Wijesekera, head of UNICEF's Global Water, Sanitation and Hygiene programmes, said, "The story of access to safe drinking water since 1990 has been one of tremendous progress in the face of incredible odds. But there is more to do. Water is the very essence of life and yet three - quarters of a billion people - mostly the poor and the marginalised - still today are deprived of this most basic human right."

The UNICEF says currently, there are only three countries - Democratic Republic of the Congo, Mozambique and Papua New Guinea - where more than half the population do not have improved drinking water.

Meanwhile the government of Ghana hopes to increase coverage for safe drinking water in both rural and urban areas to 65 per cent and 76 per cent by the end of 2015. ■

Emmanuel Yartey

Fast connections for high-flying businesses

Vodacom Business Nigeria enhances its market profile with new solutions for Nigerian businesses and superior support for business practices

West African commercial connectivity provider Vodacom Business Nigeria has recently connected its global network to the Internet Exchange Point of Nigeria (IXPN). The IXPN provides a platform that allows several Internet Service Providers (ISPs) and network operators in Nigeria to exchange traffic between their networks by means of peering agreements based on transparency and confidentiality. Vodacom Business Nigeria is the first enterprise solutions provider connected to the newly created IXPN exchange point in Ikeja, Lagos.

Connecting to IXPN not only reduces Internet transport costs and network latency but also ensures faster access to local content as traffic is exchanged locally. The real value of an Internet exchange is in encouraging a maximum number of local ISPs to connect across the IXPN peering points. Vernon Van Rooyen, chief technical officer at Vodacom Business Nigeria, said, "With our connection to IXPN we have improved on our ability to connect locally and with a large number of the world's Internet networks directly. This improves latency times and reliability, for all our customers. Furthermore, our customers can access locally hosted content within Nigeria rapidly, securely and cost effectively."

Additionally, with peering amongst ISPs, the company will facilitate greater Internet penetration and gradually bridge the digital divide existing in the country.

Superior telephony for advanced enterprises

Vodacom Business Nigeria has enhanced its support for Nigerian enterprise by refining its voice suite portfolio with the launch of two new solutions, Business Connect and Business Express. These are enterprise-grade fixed telephony solutions made for Nigerian businesses and specifically designed to give superior and cost-effective voice services.

Vodacom Business Connect enables enterprises with existing private branch exchange (PBX) infrastructure to make and receive external calls. It integrates seamlessly with the customer's legacy PBX and supports a wide range of advanced protocols and interfaces including session initiation protocol (SIP), foreign exchange office (FXO) and E1 links. For enterprises without an existing PBX, Vodacom now offers Business Express, which is an IP PBX solution hosted from Vodacom's data centre. This solution provides businesses with the functionalities of a PBX without the need for any capital expenditure (capex) investment.

Vodacom Business Nigeria product manager Abu Etu said, "The increased in employee mobility and the usage of multiple devices among employees, introduces some complexities that slow down processes in the workplace. Our Enterprise Voice solution allows businesses to communicate with their staff across different devices maintaining one number and dialling behaviour, so that every business call is answered."

Successful business communications in the modern environment require secure real-time collaboration, single phone number reach, and solutions that can ensure mobility while reducing cost. Vodacom Business Nigeria head of operations Vernon Van Rooyen said, "We've worked hard to develop the right tools specifically for the businesses in Nigeria. We have regional numbers approved by NCC for all our customers. In addition, our solution is integrated allowing employees across all departments in an organisation to easily locate and communicate with colleagues, which enables them to reach one another anytime, anywhere and on any device. By empowering employees to work more flexibly, not only can overall productivity increase but work/life balance and job satisfaction also improves significantly,"

The Vodacom Enterprise Voice Solution can make a big difference with automatic call hunting between staff, dedicated conference bridge, at cost effective rates, helping businesses to reduce telephony expenses. Customers can answer calls to their office landline number on multiple devices, so they will never miss a business opportunity.

A new Nigerian focus on business integrity

The fresh support for commercial connectivity follows Vodacom Business Nigeria's inclusion in the list of signatories to the Convention on Business Integrity (CBi), representing an undertaking to observe the values of the Code of Business Integrity within its own organisations and in its dealings with customers and partners. The initiative is spearheaded by Vodacom Business Africa managing director Douglas Craigie–Stevenson and Vodacom Business Nigeria managing director Guy Clarke, who signed the documents that formalised the company's membership to CBi.

According to Douglas Craigie-Stevenson, the company has always advocated for highest level of integrity in business. He said, "Joining the Convention on Business Integrity shows our commitment to conducting all our business affairs with honesty and professionalism in the Nigerian business space."

Guy Clarke added that, by signing into CBi, Vodacom Business Nigeria had "pledged to abide by its Code of Business Integrity". He added, "Collectively, we will gradually change the perception of doing business in Nigeria especially in the international scene."

The Convention on Business Integrity was established in 1997 with the mission of promoting ethical business practices, transparency and fair competition in the private and public sectors. To show their pledge to the Convention, signatories enter into a purely moral commitment with the intent of benefiting from and upholding the platform of credibility, which the members of the Convention share. CBi chairman Professor Yemi Osinbajo has commended Vodacom Business Nigeria for its efforts in maintaining ethical business practices. ■

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The development of a World Trade Center, a leading global trade platform in the city center of the Federal Capital Territory by the Churchgate Group is the result one of such efforts. This emerging business hub/trade service community would become Africa's commercial powerhouse with a global perspective that would help members solve trade challenges when its 1st phase is completed in Q4 2015.

African members would further prosper locally and can lead their groups to make prolific entrances into new international markets, while foreign members can also easily lead their groups to make prolific entrances into the Nigerian marketplace and the African marketplace at large. These business activities/trade expansions would greatly foster economic growth.

The World Trade Center Abuja is built as a mixed-use community with 3 AAA commercial towers with 1200sqm of purchasable space per floor with 24 floors per building, 3 opulent residential towers with 1 - 6 bedroom apartments with 24 floors, a set of commercial twin towers in-between with 36 floors and a 40,000sqm Capital Mall behind.

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Clearing the way for critical infrastructure

TDI's specialist business, providing commercial landmine and explosive remnants of war clearance, so that local economies can be built

As managing director at The Development Initiative (TDI), Hugh Morris oversees a unique and expansive operation, providing services to humanitarian and developmental projects. The company works, also, with private sector enterprises to prepare the way for critical infrastructure projects - such as in the oil & gas sector, clearing the ground of unexploded ordnance and remnants of war (ERW) so that pipelines can be constructed.

TDI's business model is based around the recruitment and deployment of qualified specialist personnel. Its people hail from diverse backgrounds, and address a range of disciplines; TDI needs not only mine clearance experts with experience of operating in the harshest environments, it needs also project managers, accountants, plant and equipment operators, and medics. It needs people who can plan and execute the logistics to sustain small communities, to embed people in culturally-sensitive arenas and complete work without creating environmental or commercial obstacles to ongoing development.

In interview with African Review, Mr Morris detailed what companies working in post-conflict zones need to consider before introducing new infrastructure in a region.

Experience is essential. Since joining TDI in 2005, Mr Morris has completed approximately 40 projects for 13 clients. Notably, TDI has worked so effectively with the United Nations (UN) that has not only a number of live mandates but and has also become a prequalified supplier. With respect to private sector projects, it must be said that the oil & gas sector stands out - but it is by no means the limit for the company, which has plans to grow by moving into new sectors and new regions across Africa and the Middle East, further to its ongoing work in challenging environments including remote regions of South Sudan, Sudan, and Mali.

TDI engages Somalian communities in Bula Hawa

Typical scenarios for an atypical business

South Sudan represents much of what TDI stands for. Having won a contract to work for the United Nations Office for Project Services (UNOPS) in January 2015, TDI has undertaken landmine clearance in the country, mobilising two multi-task teams to support United Nations Mine Action Services (UNMAS) in Juba. Following accreditation, TDI's specialist teams were deployed throughout South Sudan and have undertaken a broad range of tasks, including landmine and unexploded ordnance clearance, ammunition and stockpile destruction and battle area clearance. It is a challenging process, requiring liaison with communities in the region, education local populations about the risks of mines and unexploded ordinance - ensuring families, in particular, which may have been displaced by conflict, are able either to continue to resettle or suffer minimal disturbance to their lives during the course of the project.

TDI's work with UNOPS and UNMAS before this, in 2014, offers an example of the diversity of requirements. Mr Morris led the completion of a four-month contract for the UN bodies in 2014, to provide basic first aid training to over 2,800 personnel from UN troop-contributing countries in Mali. The training of potentially life-saving first-response protocol was delivered by six experienced medical trainers to peacekeepers from countries including Chad, Guinea, Senegal, Cambodia, Nepal, Bangladesh and Niger. The training itself, which was delivered in the northern Malian regions of Gao and Kidal, entailed the provision of an individual first aid kit (IFAK) to each peacekeeper completing the training.

Mr Morris regards TDI's work with UN organisations with particular pride. The consequences of the projects in South Sudan and Mali, for example, whilst distinctly different - but, as Mr Morris points out, the end goal is "the empowerment of local communities by clearing the way for future development". TDI's work in South Sudan and Mali (where TDI has in fact operated since 2013, providing mine action and counter-improvised explosive device (C-IED) support) are typical examples of the atypical work undertaken by the company to ensure the provision of vital support "in some of the most hostile and inaccessible locations in the world". ■

Structured to serve Africa's vertical sectors

World-class manufacturer Kirloskar Brothers Limited maintains a strong focus on extensive high-quality support for pump operators

World class pump manufacturing requires expert engineers and expertise in systems for fluid management. Kirloskar Brothers Limited (KBL) trades precisely on these attributes. KBL is the flagship subsidiary of the US$2.1bn Kirloskar Group.

KBL leads Africa's markets for fluid management solutions to serve large infrastructure projects, addressing requirements in water resource management, power generation, oil & gas operations, solar-operated pumps, building & construction, irrigation, valves, and marine & defence applications. Specifically, the company engineers and manufactures industrial, agricultural and domestic pumps, valves and hydro turbines.

KBL has eight manufacturing facilities in India - Kirloskarvadi, Dewas, Kondhapuri, Shirwal, Ahmedabad, Kaniyur, Kolhapur and Karad. The company has also invested heavily in seven manufacturing and packaging facilities around the globe including facilities in Egypt and South Africa.

Manufacturing innovations such as KBL's i-NS pump - an aesthetically-advanced non-clog sewage submersible pump with a compact form factor and low maintenance - distinguishes the company in Africa's key emerging and established markets. It is particularly notable for its modular concept, enabling interchangeability of components. Its integrated design also eliminates most of the potential leakage and short circuit issues typically faced by the end-users in the water & wastewater treatment industries, sewage, building construction and allied sectors. The integration of major components also translates into a reduced total number of parts, and minimised fasteners, so the pump has better assembly and dismantling lead time than its competitors.

Mr Sanjay Kirloskar, chairman & managing director at Kirloskar Brothers Limited, is particularly proud of innovations such as the i-NS pump. He spoke, recently, of the development of the "technologically-advanced i–NS", which reaffirms the company's commitment to "providing advanced fluid-handling solutions for critical applications".

Quality manufacturing environments

All facilities operated by KBL are ISO 9001 & ISO 14001, OHSAS 18001, ISO 14000 Environment Standard certified and apply Total Quality Management tools using European Foundation for Quality Management (EFQM) model.

Such attention to quality is critical to its ability to meet the growing demand for its pumps and systems across various industries and market segments - but so is KBL's dynamic structure, and flexible response. The business is segregated to serve different verticals, to ensure that it is a truly customer-focused organisation, supporting product and project management and operational efficiency in all situations and at all stages. KBL is structured to serve Gas, Oil & Defence; Power; Distribution; Building & Construction; Irrigation; Water Resource Management; and Customer Service & Spares.

Such commitment to excellence has been acknowledged. For example, with KBL's all-women plant at Coimbatore winning the Merit Award by the Confederation of Indian Industry (CII) under the 5S excellence category, 5S being the five-step technique for creating and maintaining a good housekeeping at workplace, to make it clutter-free, well-organised and clean, to increase morale, product quality, a positive impression on customers and the overall efficiency of the organisation.

Working well in Africa

KBL has a strong record of service to vertical industries throughout Africa - as demonstrated by its work in West Africa, where it has acted as successful partner to irrigation specialists in region. Most notably, its partnership with the Government of Senegal to support economic growth through improved water resource management goes back a decade to 2005, when it first showcased its range of pumps and capabilities to Ministers from over 25 African nations at the CII-Exim Bank Conclave on India-Africa Project Partnership. It is an established industry lore that the Senegalese Government reached out to KBL to provide it with a knowledge and technology to help boost the country's rice production levels through implementation of irrigation equipment and that this partnership has been especially successful, with rewards to all key commercial and community stakeholders.

In particular, the River Senegal is now an all year round source of much needed water and nutrients, where historically there had not been the means to deliver water to the fields along it. In ten years, KBL's support for improved irrigation has seen Senegalese rice production grow from less than 100,000 tonnes to approximately 1,000,000 tonnes, on the back of the supply of around 2,400 diesel engine-driven pump sets, and 20 drip irrigation systems and accessories, with pipes, trolleys, hoses, pontoons and valves.

In addition, KBL has many prestigious pump installations to its credit in Africa. Few of the notable installations include supplies to the Department of Water Affairs of Namibia, Malawi and Tanzania, large HSC and VT pumps with Rand Water & Kroonstad, Municipality in South Africa, Mopani Copper Mines in Zambia, Lusaka Water & Sewerage Board, etc.

Frontier markets for private banking

As private wealth increases across the continent, and consumer-driven industry growth outpaces non-African regions, so regulation of investible assets gains critical importance

The consumer-driven industry like retailing, banking and telecoms is growing two to three times faster than those in developed (OECD) regions

Fuelled by unprecedented economic boom and higher commodity prices (until recently), the number of affluent or 'super-rich' clientele in Africa has soared in the past decade. The global asset management industry is becoming increasingly aware of the region's rising private wealth, which Credit Suisse Wealth Data book 2014 put at US$2.83 trillion – equivalent to 117 per cent of the continent's GDP. The wealth of African-based billionaires in the Forbes list (see Table1) amounts to US$90.55bn. Therefore, the prize for fund managers to tap huge pools of African private wealth is tremendous.

New private wealth is being created at a rapid pace across much of west, east and southern Africa from commodity trading and thriving agriculture, services and technology sectors. The consumer-driven industry like retailing, banking and telecoms is growing two to three times faster than those in developed (OECD) regions. The construction boom in Luanda, Nairobi and Lagos reflects the frenzied activities across the wider economy, with new skyscrapers, luxury shopping malls and five-star hotels being completed or under-construction. By 2030, Africa's top 18 cities could boost a combined spending power of US$1.3 trillion, according to McKinsey Global Institute.

Elite investing class

However, tracing the activities of super-rich is difficult given only fragmentary, anecdotal evidence. Data from the Oxford-based consultancy New World Wealth (NWW) revealed that in 2013, there were 165,000 high net-worth individuals (HNWIs) on the African continent. South Africa had around 48,700 HNWIs; Nigeria (15,700); Kenya (8,300); Angola (6,400); Tanzania (5,600); Ethiopia (2,700); Ghana (2,400); Mozambique (900); and Zambia (900).

The dollar millionaires' club is now exploding — the South African-owned Investec Asset Management explained, "The accumulation of wealth in Africa is spreading beyond the countries which we think of, countries such as South Africa and Nigeria. We see wealth in Rwanda, in Ghana, in South Sudan, in Angola. These are places starting to garner our attention."

More revealing information is that sub-Saharan Africa during 2007-13 was the fastest growing region for wealthy individuals, with Ethiopian, Angolan, Ghanaian, Tanzanian, Nigerian, Kenyan and South African HNWI numbers (in percentage terms) swelling by 108, 68, 56, 51, 44, 24 and 14 per cent respectively. By contrast, worldwide HNWI volumes fell 0.3 per cent during the same reporting period, according to NWW report.

As a benchmark, HNWIs possess investable assets of over US$1mn, while the ultra high net-worth individuals (UHNWIs) hold US$30mn-plus in assets. South Africa has the highest concentration of super-rich totalling some 581 UHNWIs. Growth in private wealth is linked to a number of variables, such as the country's GDP (in US dollar terms), natural resource endowments, the respective size of local equity and real estate markets, the pace of new business formation and Black Economic Empowerment (BEE), notably in South Africa, as well as regular access to government and private sector contracts.

Besides South Africa, where HNWIs are expected to reach 62,400 by 2017 based on NWW projections, emerging hubs for private bankers are Accra, Lagos and Nairobi. Investec noted, "These cities have good reputations for doing business, are relatively safe and are slowly amassing a wealthy population that fits the HNWI definition." Luanda remains a vibrant market but some bankers are wary of doing business there because of regulatory uncertainties. One asset manager cautioned, "While financial law may be in place, enforcement is a major obstacle to wealth management and private banking in Angola."

Evolution of private banking

Wealth management in Africa is largely 'spill-offs' from retail and corporate banking arms. Like any other developing regions, the bulk of private money in Africa over decades has originated from wealth creation rather than purely wealth preservation – as mostly in Western Europe and North America. Thus, wealthy clients are looking for diverse product-lines to help grow their businesses in both regional and world markets.

Eric Enslin, head of private banking for RMB Private Bank and FNB Private Wealth, both owned by South Africa's First Rand Group, explained "RMB Private Bank emerged from our investment banking arm. FNB came from our retail and commercial banking arm. It was the case that our corporate and investment banking clients were looking for more financial support and wealth management services. We adapted our services to match demand."

On the corporate side, entrepreneurship and innovation created strong demand for project (asset-based) financing, heavy equipment leasing, venture capital as African blue chips seek to raise private equity and debt to fund expansion, underwriting for initial public offerings (IPOs) and specialised advisory services (fiduciary/ custodian), advising on mergers and acquisitions (M&As) and treasury products for commodity hedgers, including currency and interest rate swaps, as well as portfolio investment services. In 2014, 24 African-based companies raised over US$2bn via IPOs, according to law firm Baker McKenzie.

The region's private assets are mostly held overseas that explains why most global fund managers ignore retail segment as an asset-class, thus targeting 'offshore' investments. Multinational banks are

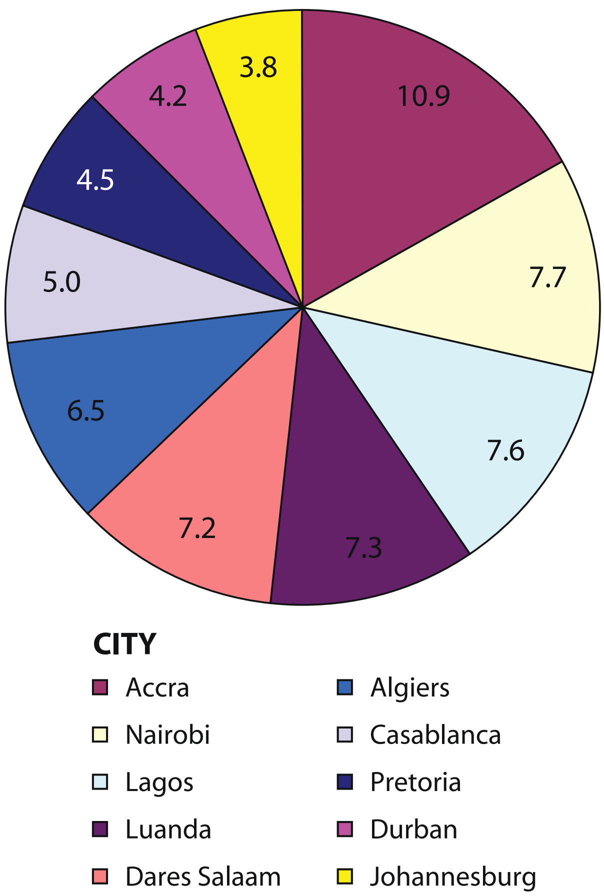
List of African Billionaires (Top 10)

NAME	Nationality (US$ bn)	Source of Wealth Rank	Net Wealth	World
Aliko Dangote	Nigeria	Cement manufacturing, Flour, Sugar	14.7	67
Johann Rupert & family	South Africa	Luxury goods	7.4	179
Nicky Oppenheimer & family	South Africa	Diamonds	6.7	201
Nassef Sawiris	Egypt	Construction machinery	6.3	225
Christoffel Wiese	South Africa	Retailing	6.3	225
Mike Adenuga	Nigeria	Telecom, Oil	4.2	393
Mohamed Mansour	Egypt	Diversified holdings	4.0	418
Nathan Kirsh	Swaziland	Retail, Real estate	3.9	435
Isabel dos Santos	Angola	Diversified holdings	3.3	534
Naguib Sawiris	Egypt	Telecoms	3.1	577
Issad Rebrab	Algeria	Foods	3.1	577

Source: Forbes 2015 Ranking

main channels for investing overseas, reflecting vast global contacts and presence in capital markets stretching from New York, London, and Frankfurt to Tokyo. The Swiss-owned Credit Suisse commented "We can connect an investment banking client in Turkey with a private banking client in sub-Saharan Africa and vice-versa. We can match supply and demand through our own networks."

Projected annual growth rate



Increased competition

Super-rich Africans demand the same sophisticated services as HNWIs elsewhere, including portfolio risk management, offshore diversification, dynamic asset allocation and alternative investments, such as Sukuk Islamic tradable bonds, hedge funds and commodities. To compete successfully, wealth managers sub-divide this 'niche' market on the basis of investor characteristics, such as investable assets, demographics and spending behaviour, in order to design appropriate products and levels of services, as well as efficient delivery channels. That, in turn, creates trust, loyalty and most importantly, profitability for the wealth management industry.

Global universal banks are forming closer ties with sub-Saharan Africa, thus providing stronger links to global capital markets through their offshore capabilities and connections. Citi Private Bank, Morgan Stanley Investment Advisors Inc, JPMorgan, Goldman Sachs Asset Management, Barclays Global Investors, HSBC Private Bank, UBS Global Asset Management, SG Asset Management, Deutsche Asset & Wealth Management, DBI Dresdner Bank Investment Management, Nomura Asset Management Co. Ltd, are reputable brands among rich African clientele. They operate mainly on 'suitcase banking model' – flying in and out – without the physical presence in African countries.

> "The accumulation of wealth in Africa is spreading beyond South Africa and Nigeria. We see wealth in Rwanda, in Ghana, in South Sudan, in Angola." These are places starting to garner our attention."

Regional heavyweights see private banking as a lucrative business. Additional to major South African institutions, Zenith Bank, First Bank of Nigeria, Guaranty Trust Bank and Ecobank Group, among others have also developed capabilities to participate in key economic sectors as petroleum, power, real estate, heavy industry, treasury and wealth management products for institutional and high net-worth clients. They boast an advantage over global counterparts of having physical networks and local knowledge for meaningful face-to-face interactions.

Competitive advantages

"Regional players, in close proximity to their clients, growing in tandem with their clients' awareness and wealth, can provide the one-stop-shop that African HNWIs desire," said Steve Wainwright, head of Deutsche Asset & Wealth Management in SSA. He added, "The balance could shift. Private banking landscape in Africa will be dramatically different in the next 10 years."

Margaret Nienaber, global head of Standard Bank's private division, also believes suitcase banking concept is not sustainable for much longer. "There is an increasing need for wealth managers to embrace the local culture, economy and regulatory environments of specific jurisdictions in Africa where local and regional differences need to be understood," noted Standard Bank, Africa's largest banking group by total assets and tier-one capital.

Multinationals, however, continue to boast credentials over regional players in 'high-margin' businesses like raising venture capital (via IPOs) and debt through syndications or foreign-currency denominated corporate bond issues. Also, HNWIs prefer using the services of global fund managers for offshore diversification – prerequisite for wealth creation and preservation.

In sum, the African frontier region, albeit starting from a low base, is fast becoming sophisticated, thus enhancing opportunities for private bankers in coming years. The 2014 Knight Frank Wealth Report predicted that number of multi-millionaires in Africa would expand at a faster rate than global average. ■

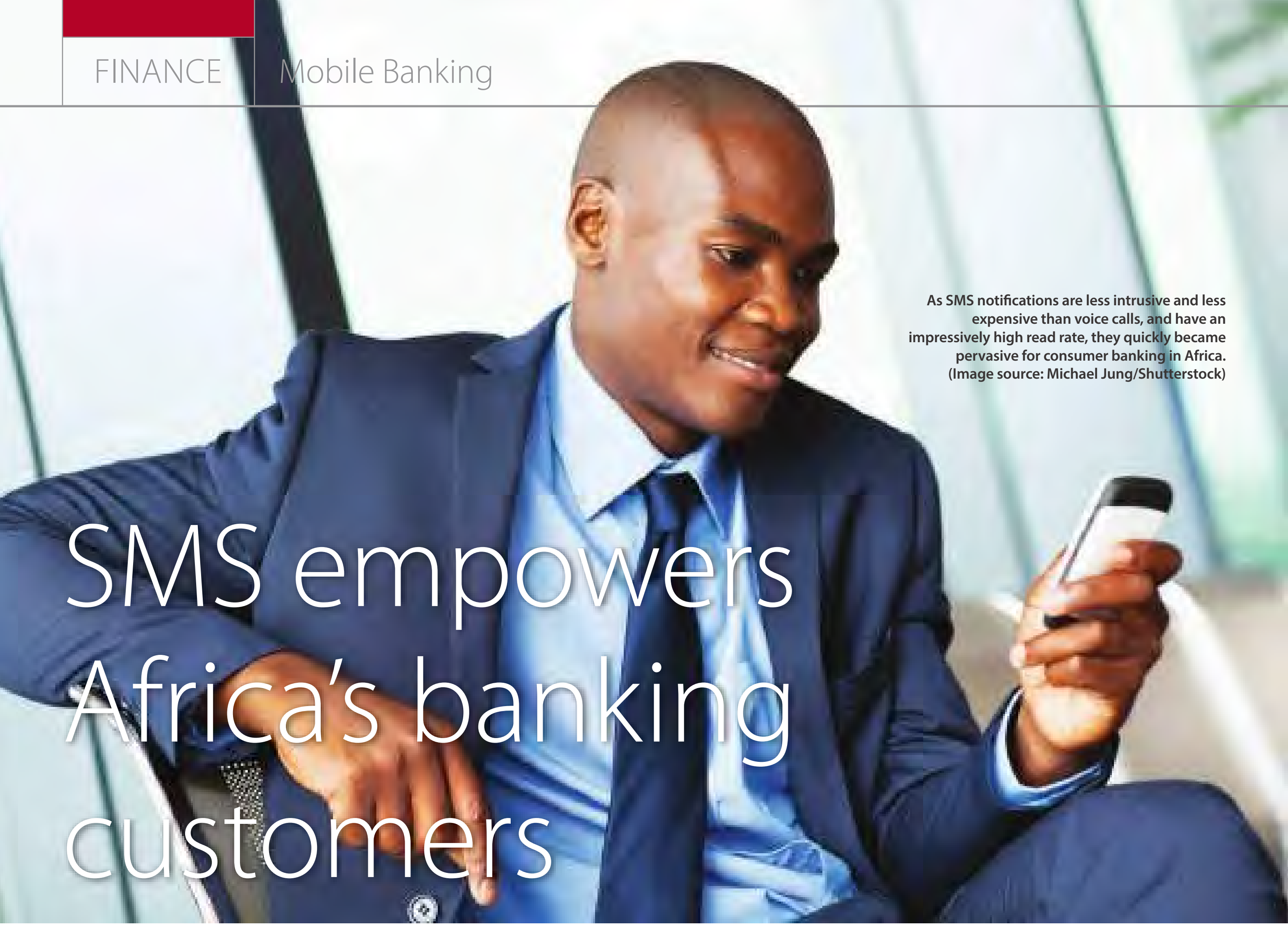
— Moin Siddiqi, economist

Africa's Fastest-Growing Cities for HNWIs

Rank	CITY	2012	2020	Proj. annual growth rate (percent)
1	Accra	800	1,500	10.9
2	Nairobi	5,000	8,100	7.7
3	Lagos	9,800	15,800	7.6
4	Luanda	2,400	3,800	7.3
5	Dar es Salaam	1,900	3,000	7.2
6	Algiers	2,300	3,500	6.5
7	Casablanca	2,700	3,800	5.0
8	Pretoria	2,500	3,400	4.5
9	Durban	2,700	3,600	4.2
10	Johannesburg	23,400	30,600	3.8

*The survey only included cities with over 800 HNWIs in 2012.

Source: The 2014 New World Wealth Report



As SMS notifications are less intrusive and less expensive than voice calls, and have an impressively high read rate, they quickly became pervasive for consumer banking in Africa. (Image source: Michael Jung/Shutterstock)

SMS empowers Africa's banking customers

The rise of professional messaging solutions has addressed not only technical issues, but has also allowed banks to offer innovative services

The mobile technology market in Africa is growing fast. Since 2000, mobile penetration has exploded and is expected to reach 79 per cent by 2020, according to Frost and Sullivan. With huge expanses of difficult to access terrain, the African landscape does not lend itself to traditional fixed line telecom services and mobile fills this gap. This creates the ideal environment for developing new ways of utilising mobile technology, and from m-health apps to m-payments Africa leads the way in terms of mobile service innovation.

With 3G and LTE still an unfeasible option, 2G mobile platforms are at the very core of consumer life in Africa. As such, it is no surprise that banks have adopted this technology to cater for their mobile-oriented user base as a way of improving customer service and ensuring loyalty.

Initially, banks used SMS technology to send customers basic notifications. Research at the time reported a range of benefits from reductions in overdraft charges to improved customer satisfaction. Even the simplest alerts led to an improved relationship between banks and customer, as increased interaction helped consumers to feel more in control of their own finances, being able to access relevant information instantly when on the go. As SMS notifications are less intrusive and less expensive than voice calls, and have an impressively high read rate, they quickly became pervasive for consumer banking in Africa.

> **"Africa's mobile money market is huge, topping US$61bn in 2012 — greater than the amount of money sent via mobile in Europe and North America combined**

However, early rollouts required a huge amount of technical infrastructure behind the scenes, making initial deployments less than smooth. Banks needed multiple agreements with mobile network operators, which meant connection maintenance and commercial relationships were handled separately for each operator. This was far from ideal, and overcoming the technical diversity of MNO systems and connections required additional work.

Later on, SMS notification systems became unified and integrated into banking IT systems, but this was not without its flaws. Performance was still affected with bank employees often spending their time managing the text notifications service with minimal technical support available if something went wrong. Without a simple to use interface for management and reporting, incomplete service was common. Banks had limited insight into delivery rates and speed and with no real-time reporting it was impossible to gauge the success rate of delivery to customers' phones, as well as the impact the messages were having on the user.

The past decade has seen the emergence of SMS specialist companies able to develop robust and sophisticated solutions to solve many bank-specific requirements. This has included enhancing security, incorporating advanced sending and database integration and ensuring quality connections, delivery and transparency.

The rise of professional SMS solutions has addressed not only issues holding back the technology, but has allowed banks to offer consumers ever more innovative services via SMS. Integrating notifications with banks' IT systems became much faster and easier, requiring little effort on the part of bank employees and without straining the bank's day-to-day operations.

Reaching several networks, even in multiple countries or regions, became a matter of connecting to a single outsourced SMS specialised provider, who then managed the underlying technical and commercial telecoms complexity. A once complicated and challenging process transformed into a simple one, with reliable connectivity and coverage. Extensive reporting along with management and monitoring functions were easily incorporated and supported by the service provider.

> "As services develop and consumer habits change, alerting systems are advancing to accommodate emerging needs and expectations of customers

By integrating their database with a messaging gateway, banks could send reactive SMS messages, meaning alerts and notifications would give real-time updates on specific activity relating to a customer's account. Systems were improved and processing power enhanced, allowing them to deal with peaks in notification volumes. These developments greatly reduced the complexity involved in rolling out messaging services and enabled banks to offer more timely and sophisticated services.

One of the advantages of SMS-based communication for financial services is its reputation as a secure channel. This is essential as any message sent out from the bank to its customers potentially contains sensitive, private information about the person and their finances. Security provisions such as VPN tunnelling, IPsec protocol, data encryption or proprietary infrastructure are crucial elements in enterprise messaging flow. It is hardly surprising that advancement in the enterprise SMS space has resulted in SMS-specific security solutions. International certificates such as ISO 27001 are increasingly becoming the norm allowing SMS to function as the communication channel which marries security with convenience for the consumer.

The process of evolution is still ongoing and Africa is at the heart of mobile innovation in banking. As services develop and consumer habits change, alerting systems are advancing to accommodate emerging needs and expectations.

The trend today in the continent is for enterprises in other sectors too to look towards professional SMS services for customer care. Together with global coverage, integration assistance and quality technical support, companies are moving towards demanding a comprehensive and flexible solution accommodating the rapidly changing demands and habits of mobile-oriented consumers. ■

Silvio Kutic, CEO, Infobip

Collaboration: the future of the supply chain

What supply chain technologists must consider when supporting retail sector operations

To extract maximum value from operational environments and remain relevant in today's increasingly competitive markets, organisations must move towards a 'collaborative' supply chain model, powered by the latest technological innovations. This collaborative model – tightly integrating suppliers, assemblers, partners, distributors and end users – provides a sharp contrast with the previous era.

Interacting in an interconnected world

The supply chain was historically composed of individual point-to-point interactions; think of the large retail giants of the second half of the 20th century, whose super-efficient proprietary supply chain models were predicated on scale. However, in today's interconnected world, point-to-point models are weighed down due to costly maintenance requirements and a lack of scalability. They inhibit firms from moving with agility in new directions and into new markets.

Customers today are not only more cost-conscious and better informed about competitor offerings, they also demand ever faster fulfilment, the ability to customise, and other services like the ability to track the progress of goods being delivered.

To respond to these changing dynamics in both consumer markets and technology, organisations are recognising that an efficient supply chain is the key to a business's success.

Supplying to the retail sector

A recent IDC survey showed that 71 per cent of companies across all verticals aim to reduce the lead times in their supply chain, with 68 per cent planning to increase their fulfilment capabilities, in order to keep pace with customer needs.

In the retail sector specifically, this pressure to enhance supply chains becomes even greater. But to improve an organisation's value chain, one has to carefully navigate complexities such as regional regulations, fines, international shipping restrictions and competition, to name just a few.

The complexity is further heightened by the emerging concept of 'coopetition' – or 'cooperative competition' – where companies look to partner with competitors in interesting new collaborative models, leveraging the unique strengths of different players in order to satisfy customer demands.

Being able to partner with direct competitors, or marginal competitors in adjacent verticals, may well prove the difference between failure and success.

Enterprising scenarios

So, how can organisations manage these complex scenarios? There are four primary spheres of enterprise technology which are shaping the new supply chain landscape:

- **Cloud architecture** – By flexibly re-sourcing IT assets, there is less need for huge upfront investments and multiyear deployment timeframes. Organisations can rapidly scale up and enhance their supply chain architectures, allowing for fluid integration with partners.
- **Big data** – Smart systems that analyse reams of data can be used to design rule-based decision making engines. This speeds up processes, reduces the need for unnecessary human intervention, and replaces the arduous necessity of manually compiling data and reports.
- **In-memory computing** – This allows for real-time responses to events, the 'oil' that keeps the supply chain spinning at maximum efficiency.
- **Mobility** – While rule-based decision making automates the day-to-day activities, there is a need for human, managerial input whenever certain thresholds are breached. Advances in mobility (devices, broadband, and applications) allow for faster responses and always-on visibility of the supply chain's health.

Transforming with technology

Logistics analyst David Krebs pinpoints mobility as a transformational technology in supply chain management, saying that recent innovations in mobility have been pushing the industry closer to a "completely wireless, real-time supply chain nirvana".

These advances, he explains, help organisations work smarter and faster in increasingly competitive environments. In fact, there exists a dazzling array of other emerging innovations that are finding application in supply chains; from drone technology, to ruggedized devices for delivery staff and advanced robotics.

All of these should ultimately plug into a collaborative environment that connects all members of a value chain. But to embed new innovations within the organisation's operations, and move towards a collaborative state, change agents and managers need to follow some fundamental steps.

Firstly, they require the support of key stakeholders – particularly executives from within one's organisation and in the relevant interface/partner environments.

Secondly, they need to modularise each component of the value chain, standardise on terms, and determine the rules that will underpin the collaboration.

Thirdly, all the organisations involved need to determine their states of readiness, and chart the roadmap to achieving the eventual vision.

Ultimately, collaborative value chains using game-changing new technologies not only improve efficiencies, but also help organisations achieve greater customer satisfaction and personalised service levels. ■

Jaco Barnard, head of retail at Wipro Ltd in South Africa.

Producing power across the continent

Amid increasing Sino-African co-operation over power infrastructure, Siyanga Malumo discusses his vision

Siyanga Malumo is an acknowledged power and infrastructure expert in Africa. He has over 30 years' experience in the banking industry and held senior positions at the African Development Bank, Meridien BIAU as well as the International Commercial Bank. He also remembers his first visits to China, during Chairman Mao's era, long before the shift from communism to a market economy.

He holds a degree in Business, Economics and Law from his home country Zambia, at the University of Zambia; and a MBA from McGill University in the USA. With Diplomas in French from the University of Madagascar, and Portuguese from the Escola Cambridge in Lisbon, he is multi-lingual.

Currently he has two important business vehicles. He is not only the chief executive of Africana Finance and Investments, but is also the chairman of Copperbelt Energy Corporation Africa Ltd (CEC Africa Ltd). But his career path had very unlikely beginnings.

He told African Review that he began his working life as a garden boy, then a sales clerk in a blanket factory. He recalled, "Thereafter, I became a book keeper assistant, and then a miner digging for copper, 1,000 metres underground in Zambia. From there I went into air traffic control; after that I went into archaeology; from archaeology I went into financial journalism.

"After financial journalism - where I became the first black financial journalist in Europe. Financial journalism created the opportunity to join the African Development Bank in Abidjan, between 1980 to 1986, before returning to London to run a merchant bank. At the height of my career, I was running 16 commercial banks in 16 countries as its chief executive," he notes with some pride."

He went to South Africa, right at the end of the apartheid era, to become an investment banker in Johannesburg, specialising in infrastructure projects. "Now I'm essentially an investment banker, advising on infrastructure across Africa, and in investor, owning generation, transmission and power distribution companies. That's the long and short of my story," he said.

Siyanga Malumo at the AIPF

"I knew I could not compete with normal banking; you know the 'sexy' part of banking, granting overdrafts, doing bond issues, syndicated loans, as I knew the youngsters who were coming up behind me would be far more competitive. I have to confess that I don't even know how to create an excel spreadsheet. I thought that these kids with their IT skills would just make me look stupid.

"So, I chose a specialist niche - I chose infrastructure investment. Infrastructure is not sexy - most young bankers would rather issue overdrafts than loans to fund sewerage infrastructure! Overdrafts are considered more prestigious than sewerage! So, that's why I chose infrastructure."

Investing in trade infrastructure

Armed with his experience of commercial, investment, merchant and development banking he plunged into the South African financial services scene, serving the rest of the continent. "I decided to start an office in Johannesburg, where I was technically doing investment banking, but it was more like trade finance. I set up a company called Africana Finance and Investments. But I've had one business rule in my life - I do not do business in the country in which I reside. So, I've never done business in South Africa, I always do business outside of the country."

"I set up my office in South Africa in 1994 and then later on joined with a colleague, an Africana colleague, to take over a company called Fieldstone Private Capital Group that became the largest infrastructure advisory business in Africa."

He also returned to his old company, Africana Finance Investments, to resume operations. However, the opportunity to buy the Copperbelt Energy Corporation arose, and Malumo seized it with both hands.

He explained, "Copperbelt Energy Corporation (CEC) was set up in the mid-1950s to supply power to the then Northern

Rhodesia (now Zambia) copper mines and the Belgian Congo copper mines, It was called Northern Rhodesia Border Power Company.

"In the 1960s it was nationalised by Kaunda, and then later on privatised and sold to the UK national grid and Cinergy Global Power Ltd. Three colleagues and I bought it out in 2006.

"After buying CEC, we went for growth. As Africans, nobody gave us a chance of really developing a company that had been owned by multinational, and run it properly. So, we deliberate decided to conserve as much capital as possible and run the company efficiently to fashion a track record for ourselves as African entrepreneurs who knew how to conduct a business properly.

"So, after running it efficiently for close to nine years we decided 'okay, it's now time to have a much wider perspective, let us begin to minimise our risk by creating a company which will assist us to conquer the African continent'."

Asian opportunities

Of course, being an early mover in seeking out opportunities in China had enormous benefits for Malumo in raising investment for power projects. China, which has huge interests in Zambia's mining sector, principally for copper, but also gold and other metals, requires dependable electric power for their operations, and that is exactly what Malumo and his colleagues are focusing on. Copper accounted for nearly a third of China's overseas mining investments last year.

Africa's infrastructure and power sector is highly lucrative, and China has taken a leading role in the surge of investment that have come to Africa. The figures are astounding: Overall, China's investment flows into Africa have increased 30-fold since 2005, even if it slowed somewhat in 2014.

Economists believe that China's slowdown is partially due to higher domestic wage demands, and that as a result, China's manufacturing industries may relocate to a lower-wage Africa - and this trend would also positively affect power demand.

With this in mind, a decision was made to go for expansion, so CEC Africa needed to raise more capital. To engender confidence, Malumo and his partners decided to use their own money to invest in the company. "We used our own money for about 40 per cent of the capital, and the rest we borrowed."

Malumo acknowledges that the clincher was when Standard Chartered Bank came on board as a financial backer. "After Standard Chartered we decided that we had to look for more partners, preferably development bank partners. That's how we went to knock at the African Development Bank's door to see whether they could partner with us to help us achieve this pan-African dream.

"As I'm talking to you now, the AfDB is completing its due diligence process on us. They've been to Nigeria, finalising due diligence with a possibility of bringing US$50mn of equity. So too are South African mining interests looking to become shareholders in CEC Africa."

In Nigeria, Africa's largest economy, CEC Africa entered into a joint venture with XerXes Global Investments Ltd of Abuja four years ago to make a US$164mn bid for a controlling interest in the Abuja Electricity Distribution Company (AEDC).

KANN Utility took over operational control of AEDC in November 2013, a distribution zone that covers more than 133,000km^2 with a population of 10.5mn people in 2.3mn households.

There were approximately 614,000 customers at the point of takeover in November 2013, which puts the electrification rate at about 27 per cent - in other words with plenty of scope for growth.

Approximately 80 per cent of the power consumed in the AEDC distribution area is consumed in the Abuja Federal Capital Territory.

CEC Africa provides management and operations services to the AEDC to drive the business plan and ensure that the performance targets it sets in agreement with the Federal Government of Nigeria are achieved. Other projects in CEC Africa's ambitious pipeline include setting up operations in both Namibia and Sierra Leone.

In October 2014, CEC Africa Ltd completed a dual circuit line interconnecting the Zambian and DR Congo electric grid systems that will increase the carrying capacity of the existing power conduit.

The interconnection is designed to give a significant boost to increased regional power trade, and security of supply within the Southern African Power Pool (SAPP), as it will eliminate risks associated with single circuit lines.

The upgrade was long overdue, for the interconnector had been operating as a single circuit line since 1956. CEC Africa upscaled both the Congolese and Zambian sides by constructing a second line, more than doubling capacity from 250MW to 550MW and further strengthening the SAPP central power corridor.

Capable economies

For Malumo, the business rationale of power and infrastructure investment is clear, because, as he told African Review, 600mn Africans have no access to reliable power. "And there is a growing middle class in Africa," he added, "and growing educational levels. Economies are performing relatively well compared to what they were not so many years ago.

"You might say it's a brave new world, and that new world is essentially powered by electricity. Virtually everything that the new generation of middle class Africans need will require power.

"Our dreams are very simple. We are targeting up to 50,000 customers in the next 10-years or so on the distribution side; 10,000MW of installed power in the same time-scale, and perhaps 10,000km of transmission lines. These are the objectives that my colleagues and I have set ourselves, and we believe at the rate we are growing they are achievable.

"We are now approaching 700MW in installed capacity, and our involvement in power generation in Nigeria will push us long term to additional 700MW in the next three years or so.

"The expansion of our power station in Nigeria should push us close to a total of 2,000MW. So, once we have 2,000MW, we will pause a little before adding another 1,000MW to 2,000MW. We see achieving 10,000MW in the next 10 years or so as feasible.

"We already have 1,000km of transmission lines, and adding a further 9,000km is not really very far off. And in terms of distribution customers, we have around 800,000 people. In Nigeria, we are operating in a catchment area of 10.5mn people.

"So, as we were told in the last few days in Beijing, Africa's total of 143,000MW of installed power for nearly a billion people is nothing. We must bring power to Africa." ■

Stephen Williams

GE works with Clarke Energy to deliver diesel engines

Seeking to ensure regional customer sales and services excellence for its growing diesel engine technology portfolio, GE's Distributed Power business has signed an agreement with UK-based Clarke Energy to serve as GE's first authorised distributor for diesel sales and services with responsibility for stationary power generation in Australia, Nigeria and India.

The agreement comes as GE continues to rapidly expand its reciprocating engines technology offerings. In 2014, GE's Distributed Power business introduced its new 2.6-megawatt (MW) 616 diesel engine and also integrated GE Transportation's proven 228 and 250 diesel engine product lines for stationary power generation into its growing diesel engine portfolio.

"Our new agreement with Clarke Energy will strengthen our ability to meet the growing demand for distributed power in Australia, Nigeria and India, particularly in various industrial sectors," said Darryl Wilson, vice president and chief commercial officer for GE's Distributed Power business - GE Power & Water. "Having a reliable and respected company like Clarke Energy as our authorized distributor helps ensure our customers receive the best possible service after they purchase our diesel generator set. The life cycle service support the engines receive from the first moment of startup is a crucial element of our commitment to our customers."

Clarke Energy is familiar with GE's Distributed Power business, currently serving as an authorised distributor for Jenbacher gas engines sales and services in key growth regions including Australia, Nigeria and India. Prior to signing its new agreement, Clarke Energy already had been supporting GE's diesel expansion strategy. In 2014, GE announced Clarke Energy would supply five of GE's new 616 diesel engines to Flour Mills of Nigeria plc, representing the first sale globally of the 616 in this application.

"We are excited to formally begin this new chapter in our long history of partnering with GE to develop reliable distributed power projects around the world to help customers meet their local energy and environmental requirements," said Jamie Clarke, CEO of Clarke Energy. "Our new diesel sales and services agreement with GE is a natural extension of our existing Jenbacher gas engine business relationship. This agreement gives us another excellent distributed power generation choice from GE to offer our customers in Australia, Nigeria and India."

GE's Distributed Power business has contracted to work with Clarke Energy to distribute diesel sales and services to Nigeria

"We are excited to work with GE's Distributed Power business and Clarke Energy to help our customers meet and maintain their distributed power needs with a complementary set of power generation products," said Tina Donikowski, vice president of marine and stationary power—GE Transportation. "Adding the V228 and V250 diesel stationary generators to the diesel engine portfolio provides operators with additional options that offer a legacy of highly reliable performance in some of the world's toughest environments."

Aksa Power Generation expands its operations

Aksa Power Generation will supply New Caledonia island with diesel generators

Turkish-based Aksa Power Generation has expanded its power generation business globally through various projects.

One example of how Aksa Power Generation has done this, is its current project in New Caledonia island. In recent agreements, Aksa Power Generation has signed a major deal to supply New Caledonia island with diesel generators. The island currently relies mainly on wind energy and in the past has experienced a number of power outages due to climatic affects. The harsh weather conditions has had a negative impact on the inhabitants of the island.

Aksa Power Generation will also provide supplementary services to the power plants on the island and has already completed the production phase for the first stage. The container group has a total standby power of 15 MVA, which was delivered to island in the first phase of the project by seaway.

AKSA Power Generation has been manufacturing generating sets from 1 kVA up to 3000 kVA and has a total capacity of 40,000 genset pieces in its 30 year history.

The company opened one of the biggest and advanced genset factories in May 2012, The new factory produces 24,000 units of diesel gensets annually. ■

Refusing to "load shed" education

How generators have enabled South African schools to use new classroom technologies

Curro schools in South Africa are using generators, supplied and installed by Master Power Technologies, to ensure their electronic learning environments are not "left in the dark" when the mains power is cut.

Curro owns a number of private schools around South Africa that are dedicated to providing a world-class education to all grades at affordable prices. The Curro vision is to deliver quality education based on international best practices. Currently, the group operates more than 40 schools, with more in the pipeline. Based on international best practices and the need for sustainable educational processes, Curro has embarked on a process of moving away from paper-based education where possible. It is, therefore, making use of tablet computers to ensure its learners and teachers have access to all the information they require.

Curro schools are using generators to ensure electronic learning environments continue to operate

Network functions

These tablet computers link to each school's computer network via a wireless network which is also dependant on electricity to function properly. However, despite the tablets having a built in battery to sustain them, the wireless routers instantly switch off during a power outage, leaving the learners without communications to the schools servers and the information they need to access.

"Unfortunately, tablets still require electricity to recharge," said Robert Brandt, regional sales manager at Master Power Technologies. "Batteries run out of power and with rolling black-outs becoming a fact of life once again, Curro has to ensure both the tablets and the electronic equipment they link to are not rendered useless each time the power dies."

To ensure learners and teachers have access to the resources they need at all times, Curro retained Master Power Technologies to install generators at its schools to ensure a stable supply of power to all its computing requirements.

Master Power Technologies is an independently owned total power solutions provider, specialising in the supply, installation and after sales servicing of a comprehensive range of engineered power solutions. This ranges, from modular data space solutions, uninterruptable power supply (UPS) and generator systems to battery management, automated monitoring, and control and energy management systems. The company's solutions are provided to industries such as manufacturing, mining, telecommunications, data centres and other operations where uptime is critical.

Master Power Technologies adheres to a business philosophy founded on uncompromising quality of products and services, delivered by a highly-skilled, experienced team dedicated to meeting the secure power requirements of clients.

The company ethos values close relationships and partnerships, serving an expanding client base with a focus on high quality, fit-for-purpose solutions, delivered to specification and on time.

According to Brandt, four schools had generators installed before the end of 2014, and the project is continuing in 2015.

The future for learners

Paperless education is the future as all the learners need is a tablet. All their textbooks can be downloaded to the devices along with their class work, making it easier to keep abreast of everything on the syllabus and to collaborate with each other. However, electronic devices and Internet access depend on electricity. Without a stable electrical supply, the tablets become useless after only a few hours. With the assistance of Master Power Technologies, Curro schools are embracing the future, whilst ensuring teachers and their learners are not left in the dark when the lights go out. ■

Genset maintenance for African operators

Your generator is fundamental to the continuing success of your business; a few simple checks will make sure it has been properly maintained

When your engine generating set has received its regular time-run service a quick check of the items listed here will ensure it really is ready to drive your enterprise for the months ahead. Remember this sophisticated diesel-powered machine is probably the beating heart of your business.

Keeping it cool

First, the cooling system needs to be looked over visually, whether the radiator is mounted on the machine, or connected remotely by pipework - which in itself can be a source of leaks, of course. Are any liquid emissions evident? Are all the drive belts and their safety guards secure and properly tensioned? Is the coolant level still up to the mark after the maintenance engineer has gone? Do all the fans and pumps look to be in order?

Next comes the question of engine lubrication. Levels have to be checked of course - don't rely on warning lights alone, and any make-up system fitted should be in full working order before the genset is switched on line.

Getting it started

Which brings us to starting systems, which are usually based on a bank of conventional batteries in Africa these days, but can be driven by compressed air or even hydraulics. These devices have their own specialised maintenance requirements; follow your machine's manual for any necessary check-up procedures (such as electrolyte levels in the case of conventional batteries, and draining of condensates with non-electric systems). Without an adequate supply of good-quality diesel being properly and precisely injected the genset cannot be expected to run properly, and most of the problems associated with this clean and safe fuel arise from the way in which it is stored and delivered - both onsite and off. The "day" (i.e. operating) tank needs to be checked for its level, and whether all isolating valves are functioning as they should. There will be some kind of transfer pump fitted in all likelihood, and this should be checked for automatic operation as and when needed; all spillages should be safely contained and alarm systems connected. Remember that diesel engines should never be allowed to run out of fuel. So check for leaks, obviously!

Protect your fuel supply

And always make sure that the remote bulk store, if there is one, is securely locked. You don't want theft of precious fuel, but even worse would be contamination with solids and liquids, including moisture. And if your machine is one of the few that runs on piped or bottled gas then make sure the supply regulator is set to the correct pressure too.

A cleanly and clear-flowing exhaust with minimum gas flow restrictions is essential to get the most out of any internal combustion engine, including the very large diesels that are often built into modern independent power systems. All pipework, muffling and protective cowl components need to be secure and sitting clear of physical contact, capable of keeping rainwater and other environmental hazards well clear of the prime mover. There may be water/condensate drainage systems to check. Leaks must always be avoided, of course, and the engineer should have run a test to ensure no exhaust gases are being recirculated.

Set the electrics

Next, the electrics at the alternator end of the whole generating set. Before starting up for a sustained operational period both the 'local' and 'remote' controls and warning systems mounted on the machine and elsewhere should be checked for function under load. Full checks should already have been completed on any changeover, transfer or paralleling switchgear which is fitted, including the energising of auxiliary supplies and the synchronising with other sources. This is a very delicate operation, so make sure all protective covers are securely in position so that interference cannot take place once the set or sets are running normally. Load testing is normally carried out by the maintenance team who should supply all necessary documentation; make sure this is properly completed and dated before storage.

And finally, check the floor-space around the machine itself. Are the surroundings clean and clear from all obstructions, including spares and loose materials? Do the lights work? Is the plant-room secure, but with access by authorised staff unrestricted? Are all air ducts and cooling louvers clean and clear? Then your business is ready for another sustained period of reliable power supply ■

Himoinsa enhances genset power with Doosan engines

Generator manufacturer Himoinsa has added thirteen generator set models with new Doosan engines to its range of products, extending the power range by up to 750kVA in prime power and 823kVA in standby.

There are six new models at 50Hz: HDW460 T5, HDW535 T5, HDW580 T5, HDW645 T5, HDW675 T5, and HDW750 T5. Seven models are at 60Hz; HDW460 T6, HDW510 T6, HDW555 T6, HDW605 T6, HDW660 T6, HDW710 T6, and HDW745 T6.

The 13 new models incorporate engines that provide an increase in power of up to 21 per cent and an ATB improvement of up to 16 per cent. The full range of industrial generator sets with Doosan engines, which until now offered a power range of 118-657kVA in prime power, has been increased to 750kVA in prime and 823 kVA in stand-by.

In this way, Himoinsa is able to put on the market a complete range of industrial generator sets, powered with Yanmar, Himoinsa, Iveco, Scania, MTU, Doosan, Hatz and Lombardini engines, which generate power ranging from 10 to 750kVA.

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Sizing, specifying, utilising standby systems

Kohler Power Systems shows how motor-starting loads affect genset performance

Today's standby power loads are more complex than ever before. In many industrial and commercial applications, standby gensets must supply power to a mixture of linear and nonlinear loads in addition to large motor loads that cycle on and off. Of all the diverse loads a standby genset must supply, applications with motors present the most sizing issues.

The dynamic interactions of motors and gensets - along with the impact of motor starters, system inertia, motor loading, frequency dip, genset preload and nonlinear loading - make manual genset sizing difficult, if not impossible.

Not only is sizing an application with large motors complex, but different genset manufacturers have different approaches for specifying a standby power system that will function reliably. Each major genset manufacturer has created genset-sizing software to help with this complex task, but due to manufacturers' differing approaches to motor starting, this software can yield quite different results - sometimes specifying a larger and more expensive generator or too small a generator than is necessary for reliable operation.

How motors affect performance, how software deals with loads

Motor loads cause difficulty because a motor draws high current when started at full voltage. Starting current is typically six times a motor's rated full-load current, and this inrush current stays high until the motor reaches about 75 per cent of rated speed. When a motor is started on normal utility power, the high inrush current will cause only a small voltage dip because the utility is a more robust voltage source. However, when a motor is started on genset power, the high inrush currents (measured in kilovolt-amperes or KVAs) can result in a large voltage dip that can inhibit the motor from reaching its operating speed.

The challenge, then, is to size the genset to handle the motor-starting load, but also to minimise the impact on the other connected loads that may be affected by voltage dips or frequency dips.

Therefore, when sizing a genset, it is critical to accurately predict voltage dips and to understand how much excess starting capability is available in the motor and what amount of voltage dip can be allowed. The most common methodology for sizing gensets for motor starting focuses on understanding allowable instantaneous voltage dips, as the primary criteria. However, there is one manufacturer that considers allowable sustained voltage dips as the primary criteria for motor-load starting.

The motor-starting KVA can be determined by the motor's nameplate. The National Electrical Manufacturers Association (NEMA) sets design standards for motors and has established a NEMA code-letter designation for classifying motors according to the ratio of locked-rotor KVAs (LRKVAs) per horsepower. These code letters range from A to V, covering motors with an LRKVA-per-horsepower ratio of 3.14 or less to a ratio of 22.4 LRKVA-per-horsepower or more.

For example, a 50 hp Code F motor requires 279.5 LRKVA per horsepower upon starting (50 hp x 5.59 LRKVA per hp = 279.5 LRKVA/hp).

LRKVA is also known as "starting KVA" or "SKVA".

Small motors have a higher NEMA code letter and correspondingly higher LRKVA-per horsepower requirement than large motors

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Voltage dips and system issues

The KVA requirements of a motor running at full load and rated speed are normally less than one KVA per horsepower. With the possible exception of small motors, it would be overly conservative to size a


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genset set simply by matching the alternator's KVA to the motor's KVA. This would typically result in a genset with more than twice the capacity necessary.

However, due to the dynamic interaction of the system components, several characteristics combine to make this approach impractical.

The first characteristic is the power factor. Three-phase genset sets are usually rated in KVA at 0.8 power factor. Starting power factors of motors vary from 0.3 to 0.5 and increase towards unity as the motor accelerates and its KVA demand drops. With a 0.4 power-factor load, a typical genset is capable of producing nearly twice its continuous-rated KVA for the time required to accelerate a motor to the speed at which its KVA requirement drops sharply. The genset engine will not stall even though it is being asked to supply more than its rated KVA, because low power-factor loads do not require as much horsepower as higher power factor loads. This genset characteristic allows satisfactory motor-starting results with a genset half the size predicted by the conservative approach, which matches the genset 0.8 power factor KVA rating to the motor-LRKVA rating.

The other characteristic that can substantially reduce the size of the genset needed for a particular motor-starting load is voltage dip. Values for motor LRKVA are based on full voltage starting. In practice, there is always a voltage dip when a motor is started on genset power, and there is even a small dip when a motor is started on utility power. When the voltage drops, inrush current is also proportionally reduced so that starting KVA is reduced as the square of the voltage dip. A 30 per cent voltage dip reduces starting KVA by about 50 per cent (0.7 kilovolts x 0.7 amps = 0.49 KVA).

At least for the first few cycles, the voltage dip is determined by the size of the load (ie, the motor's LRKVA) and the reactance of the alternator - which is somewhat proportional to the total mass of copper and iron present in the alternator. The issue in sizing a genset is determining what voltage dip will be acceptable for a particular load when considering its effect on all components in the system, some of which may have unknown transient acceptance specifications.

A voltage dip can affect motors themselves, in addition to other loads on the system. For example, excessive voltage dip can cause control relays or magnetically held motor-starting contactors to drop out, or ultimately, cause the motor to not start at all. If the relays or contactors drop out, the load is removed from the genset, causing voltage to rise and the cycle to repeat rapidly. This can damage contactors if allowed to continue. Most control relays and motor-starting contactors will tolerate a 35 per cent voltage dip. However, there are exceptions. Some relays or contactors will start to chatter if subjected to a voltage dip as little as 20 per cent. Likewise, other voltage-sensitive loads need to be accounted for (eg, UPS systems, medical equipment, HID lighting) in any genset-sizing exercise. To ensure satisfactory operation on a given standby power system, consult the voltage/frequency limitations of control components from the manufacturers or suppliers.

Voltage dips also reduce the torque a motor can supply to its load. A common NEMA Design B motor will develop 150 per cent of rated full-load torque during starting.

Torque is proportional to the KVA delivered to the motor, so a 30 per cent voltage dip that reduces KVA to 49 per cent also reduces torque to 49 per cent of its rating. If the motor starts unloaded - as most fans, centrifugal pumps and motors used with elevators do - this torque reduction produces no problem other than a somewhat longer acceleration time.

Other types of loads, such as positive displacement pumps, may require more torque than the motor can develop at reduced voltage, which prevents the motor from reaching full speed. Additional consequences could include tripping of breakers or overheating of the motor. To ensure proper motor starting in these applications, it is necessary to compare the torque curves of the pump and the motor at reduced voltage.

Motor starting criteria

Regardless of what sizing method is used or how manufacturers specify motor-starting performance, the following fundamental criteria for motor starting must be accomplished - and in the following sequence - to successfully start a motor:

1. **Sufficient LRKVA at the instantaneous voltage dip for inrush current**
   The required LRKVA at the maximum permissible instantaneous voltage dip is considered to be the first step for motor starting by most genset and alternator manufacturers.
   Typical motors are designed to sustain a 30 to 35 per cent instantaneous voltage dip before the motor-starting contacts drop out. Many specifying engineers prefer a maximum 20 per cent instantaneous voltage dip limit to ensure the motor will start and hold in the starting contacts.
2. **Sufficient genset torque and power**
   Next, the torque available from the genset must exceed the torque required by the motor load, or the motor will stall or never start.
3. **Sufficient alternator excitation system strength**
   The genset must have sufficient excitation system strength and adequate response to accelerate the motor and return it to operational voltage and speed. This third and final step addresses voltage recovery.

Instantaneous and sustained dip

While most genset manufacturers focus on instantaneous voltage dip as a primary criterion for genset sizing, at least one genset manufacturer writes specifications with a different maximum motor-starting KVA value that allows the genset voltage to recover to 90 per cent of rated voltage.

This concept - known as "sustained voltage dip" maximum KVA – assumes that when the genset can recover to 90 per cent of rated voltage, the motor will develop 81 per cent rated torque, allowing the motor to accelerate to full speed in most applications.

Real-world experience reveals that using a 90 per cent sustained-voltage motor-starting KVA value can overstate motor-starting performance and lead to improper sizing of the genset due to dynamic conditions during motor starting.

What to know to get results

When using a genset to supply motor-starting loads, the interactions are dynamic and complex.

For the most reliable and accurate results, the sizing exercise needs to consider the genset as a system, including the engine, alternator, voltage regulator and excitation system, along with motor starters. Dynamic conditions, such as systems inertia, motor loading, motor type and genset preload, are also important. By analysing this dynamic system and evaluating the functions in real-world applications, specifiers will have a better understanding of how to properly predict motor-starting performance in a more consistent and reliable way.

Finally, due to the complexity of total system loads and the dynamics of the genset and motor-starting applications, it's important to utilise proven genset-sizing software to ensure performance of the entire system in its specific application. ■

Adapted from 'Sizing gensets for motor starting', by Dan Krueger and Rick Van Maaren at Kohler Power Systems

Inmesol's green gensets

Generator sets manufactured by Inmesol have always been environmentally friendly (and not just because they are painted green!), and the company works constantly to make them even more eco-friendly.

At Inmesol it has always been a priority for its generator sets not to have undue impact on the environment, and we work continuously to reduce emissions during the manufacture, transportation and operational processes.

Reducing gas emissions

The gas emissions into the atmosphere during the operational phase of a generator set - when it is working to produce electricity - mainly depend on the built-in motor. To minimise emissions during this phase, Inmesol offers a wide range of generator sets with the latest low-emission motors. Likewise, the company assembles the alternators in the most efficient way possible to reduce emissions even further when the gensets are switched on.

Aside from the aforementioned motor and alternators, there are other components which contribute to the company's equipment being eco-friendly. For example, Inmesol manufactures the chassis and canopies itself, with pickled sheets. Similarly, during the design process, the company endeavours to work with pre-cut metal sheets, thereby greatly reducing the number of journeys from the factory and the waste to be recycled. Moreover, it has mechanised the sheet production through punching and bending the steel sheets in profiles, optimising the welding using robots. On the assembly line the majority of the work is done manually, thus notably reducing the gas emissions into the atmosphere during this phase of generator set production.

Moreover, Inmesol's painting plant is designed to be highly energy efficient. The company scrupulously monitors the gas emissions and the loss of heat during the cleaning and paint application process, using a powder coverage system which reduces the environmental impact while dilutions and liquids are drying. This system is very effective and is carefully controlled to prevent large amounts of energy being consumed, which would produce emissions.

The final tests performed by Inmesol's energy specialists check the operability of the generator sets cause emissions as they have to turn the equipment on and even do so in overload conditions.

Inmesol exports generator sets around the world, so it bis constantly optimising its design for the most efficient use of space possible in lorries and containers. These improvements not only reduce transport costs, but can also reduce fuel emissions by up to 25 per cent (according to research by Scania). Likewise, Inmesol makes a great effort to design space-effective boxes, pallets, etc, so products can be sent efficiently. ■

Altaaqa Global's plants go live in Cameroon

Completed in only 21 days, temporary gas power plants, with a combined capacity of 50MW, provide a reliable and sustainable source of power

The May 2015 inauguration of the Logbaba power plant site in Douala, Cameroon was attended by Dr Atangana Kouna Basile, Minister of Water Resources and Energy of Cameroon; members of the government; and senior executives from Eneo Cameroon SA and Gaz du Cameroun (GDC)

On 28 April 2015, Altaaqa Global's temporary natural gas power plants, with a joint capacity of 50 MW, were inaugurated at the Logbaba power plant site in Douala, Cameroon. The ceremony was attended by Dr Atangana Kouna Basile, Minister of Water Resources and Energy of Cameroon; other members of the country's government; and senior executives from Eneo Cameroon SA, the country's integrated utility company, and Gaz du Cameroun (GDC), a wholly owned subsidiary of Victoria Oil & Gas (VOG). The rental gas power plants were installed and commissioned within 21 days from the time the equipment arrived at the intended power plant sites.

Collaborative business model

The successful completion of the temporary gas power plants stands as a testament to the viability of a business model featuring a synergy among the government, the utility company, the fuel supplier and the equipment provider. In this particular project, with the Cameroonian government and Eneo as clients, Altaaqa Global provided the power generation equipment, and took the responsibility of importing and installing the generators at the Logbaba and Ndokoti (Bassa) sites, while GDC supplied the gas to the rental gas power stations at both the sites.

Against this backdrop, Peter den Boogert, CEO of Altaaqa Global, said, "We are very proud to have been involved in this project, and to have collaborated with Cameroon's government, Eneo and GDC. Altaaqa Global is greatly honoured to have contributed to Cameroon's national energy strategy and to have had the chance to promote the greater good of the Cameroonian nation. The success of this project proves that through the synergy among entities that put service and integrity above themselves, anything can be achieved. Here, we have witnessed that the sum of all of us is greater than each of us."

The business model also proved to be economically beneficial to the service providers, with Kevin Foo, CEO of VOG, even calling it a true game-changer. "[Through the agreement with Eneo] We have secured a major near-term user of gas for our Cameroon business," he continued, "and we are now becoming an active part of Cameroon's energy equation."

Environmentally friendly technology

In addition to the collaborative business model that led to its successful completion, the project also boasts of its environmental stewardship, with the power plants being run on natural gas.

Altaaqa Global installed state-of-the-art gas engine generators at both sites to ensure that the power plants are not only dependable but also environmentally friendly. In recognition of the worldwide emission requirements, which mandate the level of NOx emissions of equipment and industrial operations, Altaaqa Global engineered its gas generators to only emit 250 mg/Nm3 even without after-treatment.

Majid Zahid, strategic accounts director at Altaaqa Global, speaking on the sustainability of the project, said, "Our temporary gas power plants systems meet the worldwide emissions standards and do not harm the environment. These rental gas plants are designed for performance and reliability, while being more environmentally friendly compared to systems running on other fuels. As the generators run on natural gas, they do not require expensive after-treatments and are, therefore, more economical to operate owing to more cost-effective fuel prices." He added that gas systems were more flexible in fuel usage and would remain efficient even with different fuel varieties.

Cameroon's road to economic development

Electricity is vital in ensuring the continuous development of economies and industries, most especially in emerging countries like

Completed in only 21 days, the temporary gas power plants, with a combined capacity of 50MW

Cameroon. With the successful completion of the temporary gas power plants, the entire Cameroon will be provided with a reliable and sustainable source of electricity that will power the country as it works to enhance its infrastructure and construct additional facilities to support its industries.

In this context, Joel Nana Kontchou, CEO of Eneo, said, "This project addresses a shortage in the country's electricity supply, owing to a strong increase in demand, combined with a lack of a reserve in the electric system. We are pleased to work with GDC and Altaaqa, companies that share our deep commitment to responding to Cameroon's critical infrastructure needs."

Cameroon's economy has weathered the drop in prices among its principal exports - petroleum, cocoa, coffee and cotton - and has remained largely stable in recent years. In 2013, its GDP growth reached 4.9 per cent, and experts predict that it will remain within that level through 2015, riding on strong performances by the construction, oil & gas, transport, telecommunication and hospitality sectors. Cameroon's government has been working to promote growth and employment in the country through the continuous development of energy, transportation and telecommunications infrastructure. It is also keen on modernizing the country's production equipment and processes, particularly in the agricultural and manufacturing sectors. ■

A cost-effective clean energy supplier

Victoria Oil & Gas (VOG) is an energy utility business and hydrocarbon producer with energy supply operations in the industrial port city of Douala in Cameroon. The company generates cash flow from its 60 per cent owned onshore gas production wells and its energy utility subsidiary, Gaz du Cameroun SA (GDC), supplies cost-effective, clean and reliable energy products to major industries in the region. Customers are primarily supplied with gas through an extensive pipeline network built by GDC in the Douala area. GDC products currently include thermal gas, condensate and gas for gas-fired electricity generation. GDC gas is attractive to customers due to its reliability, price competitiveness, low hydrocarbon emissions (compared to heavy fuel oil) and adaptability to meet varied power requirement needs.

Cameroon's national energy network operator

Eneo Cameroon is the historical electricity operator in Cameroon. Formerly AES-SONEL, Eneo is a semi-public company with 56 per cent shares owned by Actis Group and 44 per cent by the State of Cameroon. Eneo has an installed generation capacity of 968MW. The transport network connects 24 substations and includes 1,944.29km of high voltage lines, 15,081.48km of medium voltage lines and 15,209.25km of low voltage lines. The distribution network consists of 11,450km of lines of 5.5 to 33KV and 11,158km of lines of 220-380kV. Eneo has more than 973,250 customers, of which approximately 45 per cent live in the cities of Douala and Yaoundé. Eneo employs 3,698 permanent staff.

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Upgrading our urban environments

How the UN is tackling African waste issue with its 'Greener Cities' programme

Sub-Saharan Africa's cities are steadily sinking into the mire of years of accumulated refuse as their already weak urban infrastructures struggle to keep pace with the rapid growth in population. According to some estimates, sub-Saharan Africa's urban population is expected to more than double from the present 300mn to 697mn by 2035. And this increase will put enormous pressure on the region's waste management systems. UN figures put the amount of waste generated in sub-Saharan Africa at approximately 62mn tonnes per year. But the percentage of municipal solid waste (MSW) that is collected for landfill and/or recycling is only around 46 per cent. This compares with 65 per cent in South Asia and 98 per cent among the OECD countries.

The reason that e-waste exporters are finding the western African region so attractive is due to the lax oversight by the local authorities and the increasingly stiff measures that are being taken by countries in eastern and southern Africa to prevent the dumping of e-waste. (Image source: PNPhotography/Shutterstock)

By 2050, waste from the OECD countries is expected to peak, followed by the Asia-Pacific countries in 2075. However, in the fast-growing cities of sub-Saharan Africa waste generation will continue to rise and will not peak until at least the beginning of the 22nd century.

A decade from now, organic waste will constitute around 57 percent of Africa's municipal waste - plastic will constitute 13 per cent; paper will make up nine per cent; metal will account for four per cent; glass four per cent and others the remaining 13 per cent.

Africa's waste problem is set to get worse for two distinct reasons. First, no less than 62 per cent of sub-Saharan Africa urban population already live in slum areas without access to basic services such as water, sanitation, energy and transport and waste management systems and by 2035, the percentage living in sub standard housing will be higher.

Second, although sub-Saharan Africa's per capita waste generation is currently low - at an average of 0.65 kg per capita per day, reflecting the continent's low GDP - the region is experiencing one of the highest economic growth rates in the world. Therefore, Africa's per capita waste output can be expected to grow to around three kg per person per day in its fastest growing and most developed metropolises, according to the UN.

The end result will be an increase in the generation of MSW; wastewater from various sources including households and industries, and sludge from human excreta. Nigeria's commercial capital Lagos, with a population variously estimated at between 10mn and 21mn, provides a vivid illustration of the scale of the challenge facing Africa's waste management authorities.

The city is estimated to generate 10,000 metric tonnes of waste per day of which barely 40 per cent is collected. And according to Wecyclers, recycling company, only 13 per cent of the waste is salvaged for recycling. In April 2015, the News Agency of Nigeria (NAN) reported that the waste situation had deteriorated to the extent that the city's National Stadium complex had been turned into a makeshift refuse dump.

Abolore Alanamu, manager of National Stadium, admitted that the complex was now virtually unusable as a sports venue and blamed the breakdown of the heavy lift industrial vehicles used by cleaners to dispose of the waste. 'Wheel barrows', he said, had been commissioned to move the waste out of the stadium and on to a designated site.

The waste management crisis that is affecting Africa's urban centres has prompted the UN to take a number of steps to tackle the problem. A partnership has been set up between UNEP and UN-Habitat (Housing and Sustainable Development).

It has the express brief of getting to grips with the urban waste management challenge in sub-Saharan Africa and tackling its multi-dimensional nature through its 'Greener Cities' partnership. And it will guide the work of the two UN agencies' cooperation until 2016. Next year, UN-Habitat will outline a new urban agenda for sustainable urban development.

During this April's 'Earth Week', the UN-Habitat's Governing Council convened in Nairobi to come out with a 'Greener Cities' work programme for the coming year. Addressing the delegates, the UN under secretary-general and UNEP executive director Achim Steiner promised that the

'Greener Cities' regional partnerships will include waste management in Nigeria, Côte d'Ivoire and Kenya. He said that there will also be a series of joint trainings on urban environment issues in 10 African cities as part of the Africa-China collaboration.

One area of focus for the UN is energy recovery from wastes. Among the projects that have been backed by the UN-Habitat is the 'Cows to Kilowatts' project in Ibadan, Nigeria, where the equivalent of 0.5MW of electricity is now being delivered per day. The plant is the first in the world to simultaneously treat abattoir waste and provide domestic energy and organic fertiliser.

The Lagos State Waste Management Authority is also hoping to harness the methane gas emitted from the rotting waste at Olushosun, the largest landfill in Lagos. When completed in 2019, the project is expected to produce 25MW of electricity.

In South Africa, the eThekwini Landfill Gas to Electricity project in Durban, South Africa - also backed by UN-Habitat - is generating 7.5MW of electricity from two landfill sites. Other UN-Habitat projects include the waste-to-biogas projects in prisons in Kissi and Homa Bay in Kenya as well as Bamako in Mali.

But although organic waste still represents over half of the waste generated in Africa's urban centres, concerns about the growing problem of e-waste is now at the forefront. E-waste is toxic and can contain hazardous substances including heavy metals such as lead and mercury, as well as endocrine-disrupting substances such as brominated flame retardants.

According to the UN Solving E-waste Problem (STEP) initiative, the amount of e-waste generated globally will reach 65.4mn tonnes by 2017, one-third higher than it was in 2012. However, only a few countries in Africa including Zambia and Uganda, have managed to impose a ban on the imports of counterfeit electronic products.

Most African countries do not yet have ICT policies to support the establishment of e-waste plants. And as a result, much of the recycling of e-waste that does take place in Africa occurs on an informal basis, often in unmonitored dumpsites or landfills.

And of those African countries that actually do have ICT policies most have yet to establish e-waste plants. Zambia has an ICT policy but no e-waste plant. In East Africa, only Kenya has an e-waste recycling plant, while in southern Africa, only South Africa has recycling plants.

But it is West Africa that is bearing the brunt of the e-waste onslaught. European Commission and UN studies show that the region has now become the world's biggest destination for old computers, mobile devices and components from the developed world, especially the USA and China. Ghana, Benin, Côte d'Ivoire, Nigeria and Liberia are said to be among the hardest-hit countries.

"UN figures put the amount of waste generated in sub-Saharan Africa at approximately 62mn tonnes per year

The reason that e-waste exporters are finding the western African region so attractive is due to the lax oversight by the local authorities and the increasingly stiff measures that are being taken by countries in eastern and southern Africa to prevent the dumping of e-waste. Southern African initiatives are organised under the aegis of the e-Waste Association of South Africa (eWASA).

Company members include PicknPay, Massmart and Business Connexion. eWASA lists collection sites countrywide on its website including one in neighbouring Botswana.

These sites include retail stores and independent e-waste collection areas where you can drop off batteries and other items for recycling or disposal. By comparison, West Africa, which is now taking the lion's share of global e-waste, is profoundly unsuited to the importation of e-waste.

In 2012, Ghana did have plans to ban imports of used air conditioners, television sets and used fridges, but these were subsequently shelved.

The UN has since urged the Ghanaian government to support the country's recycling sector to ensure it could cope with the huge amount of e-waste that ends up there.

Meanwhile, Ericsson the Swedish communication technology and services firm is moving to address the thorny issue of e-waste in sub-Saharan Africa. In January 2015, PC World reported that it had partnered with the mobile phone service provider MTN Benin to launch the first e-waste collection centre and awareness drive in the country.

Freddrik Jejdling, head of sub-Saharan Africa operations at the company, said that Ericsson is partnering with its customers on e-waste collection.

The Benin initiative, he added, has since expanded to include creating awareness about e-waste and helping to ensure that end-of-life material is treated in an environmentally sound manner.

Ericsson's e-waste project aims to take back telecom e-waste as well as mobile phones, personal computers and other household e-waste. The company has launched similar partnering programmes elsewhere in Africa that include product take-back services.

In Ghana, home to Agbogbloshie, one of the largest e-waste dump sites in the world, Ericsson, this year, is partnering with Airtel to oversee the disposal and recycling of e-waste, including end-of-life telecom equipment from Airtel's networks.

The challenge is enormous and Africa is very far from meeting its Millennium Development Goals.

As Steiner said in Nairobi, "As voraciously as cities will continue to consume, they will just as readily produce waste. On the other hand, sustainable cities present an opportunity to become centres of resource efficiency."

Some small steps, backed by the UN and companies like Ericsson, have begun to seriously address the issue of Africa's waste mountain. But if the waste management forecasts are accurate then Africa's cities will, rather depressingly, likely not achieve green status for another couple of generations. ■

Nnamdi Anyadike

Small and tall, capable and controlled

Bobcat's TL358/TL358+ compact telehandlers have been designed to fully address operator requirements for versatility and reliability

Construction equipment manufacturer Bobcat has launched new telescopic handlers, the TL358 and TL358+, two new compact six-metre models designed to serve construction and rental markets, designed also to complement the company's existing TL360 and TL470 machines. The TL358 and TL358+ are very compact machines, thanks to the narrow frame design with a width of only 2.1m compared to 2.3m in the TL360/TL470 models. Combined with a height of just 2.1m, they provide exceptional performance, comfort and visibility for machines of their size. They are also short machines, only 4.5m long with an optimised 2.8m wheel base for enhanced stability and a short turning radius of just 3.77m.

As well as their compactness, another important attribute of the new TL358 and TL358+ telehandlers are their versatility, with two different machine dimensions offering compactness where it is required and top performance at all times. The cab can be mounted in two ways – in a low position that results in the very low 2.1m height or a higher position to optimise visibility for the operator from the cab. The machines are available as standard with 20-inch tyres, but they can also be equipped with 24-inch tyres for better ground clearance and traction. They are equipped with a fully-automatic hydrostatic transmission with an inching function for smooth drive and continuous speed variation up to 40km/h (with 24 inch tyres) without gear change. There is also a quick change function known as 'Turtle' mode to ensure precise drive and higher torque transmission. In addition, the machines offer semi-automatic wheel realignment when changing steering modes.

Inside the comfortable, panoramic cab on the TL358 and TL358+ models, the operator has an ergonomically designed dashboard with digital display and joystick, from which they can access several unique standard and optional operating features. The first of these is the new Smart Handling System (SHS) activated via a new button on the dashboard, which allows the operator to easily adjust the speed of the boom movement (lifting, telescoping, tilting) depending on the type of work being carried out. The fast setting can be used for loading or clearing materials, whilst a second setting is ideal for placing fragile loads or other more precise work on site.

Power and performance

The TL358 and TL358+ are both powered by the Deutz TCD 3.6 L4 Stage IIIB diesel engine providing 74.4kW (100HP) of power at 2,300rpm [the Perkins 1104D-44TA Stage IIIA engine providing 74.5kW (100HP) of power at 2,200rpm is used for lesser regulated countries].

Capable of operating in very confined spaces and at great speed, the maximum lift capacity of the TL358 is 2.6 tonne, whilst the TL358+ model has maximum lift capacity of 3.0 tonne. The maximum lift height of both models is 5.80m with the standard 20-inch tyres. The hydraulic system in both is controlled by a single Bobcat joystick in the cab linked to a Load Sensing Valve block to allow flow sharing depending on the operator choice and the application need. In the Stage IIIB engine versions of the TL358 and TL358+, another standard feature is the new ECO mode, again actuated simply by pressing a new button on the dashboard, which maintains optimum hydraulic performance without using the engine's full power, adjusting the main machine features to produce a balance between top performance and providing the best performance/fuel consumption ratio.

The new Bobcat telehandlers are versatile and compact

Another standard feature is the Fast Connect System (FCS), which provides quick and easy interchange of hydraulic attachments via an integrated pressure-release system.

The TL358 and TL358+ offer several important options, including the dual FNR option, which allows the operator to choose between the joystick or a lever on the steering wheel for forward/reverse control. The optional Boom Suspension system uses a unique dual pressure system when the TL358/TL358+ are with or without load for more comfort and increased load retention. An optional fan inverter provides efficient cleaning of the radiator and air intake grill.

The TL358 and TL358+ offer a rugged design ideal for use on construction sites, with a box-welded frame to meet rough terrain conditions and intensive use, combined with a shielded bottom plate along the entire length of the machine to protect vital components. The strong boom head and the high tensile steel manufactured boom are ideal for heavy duty loading applications.

The advanced electronics in the telehandlers are based on CAN-bus technology, allowing smart machine management and monitoring of the main components for easier maintenance.

Overall the TL358 and TL358+ telehandlers are designed with minimal maintenance and service work in mind. A wide opening cover provides easy access to the parallel side-mounted engine and the main engine maintenance points. The battery is located at the front of the engine basket for easy access, while the filters are strategically placed for easy and quick replacement. ■

Putting new machines to work

The implementation of advanced equipment and solutions is remaking the continent's construction industry

Look around any construction site on the continent and you will see lots of big equipment at work. Bulldozers, excavators, loaders and other machines do the heavy lifting for Africa's developing infrastructure. But today those machines are increasingly dependent on a much lighter element; silicone.

Deeply integrated into almost every machine system, silicone microprocessors control the performance of engines and hydraulics, while satellite location systems provide guidance for machine operators. These on-board technologies then wirelessly connect with company offices, providing a near-real-time data stream that lets managers keep track of where each machine is and how it is performing. Because they combine telemetry with automated machine functions, these technologies are known as telematics. Telematics systems are now offered by every major equipment manufacturer, as well as by a range of aftermarket suppliers.

Improving performance and productivity

Not surprisingly, Caterpillar is one of the manufacturers leading the way in telematics and machine control and guidance. According to Anders Thomsen, a Dubai-based technology application specialist, that is because the company sees technology as the best way to deliver ongoing performance and productivity improvements.

"We've reached the point," Thomsen said, "where the equipment is so good that we're fighting for a one per cent gain in efficiency here or a two per cent gain in productivity there. With a machine control system like Cat Grade Control, though, we can deliver a 50 per cent improvement in grading efficiency or more. We can't afford to not put these technologies to work."

Cat Grade Control applies control and guidance to the blades on dozers and motor graders to achieve higher grading accuracy. "Basically, Cat Grade Control helps machine operators move the right amount of material to exactly the right place in fewer passes," Thomsen explained. "That saves time, fuel and money because we simply help take waste out of the customers' process."

Making the grade

Thomsen cited fine road grading as a key application for the technology. "Using a motor grader to cut a precise cross slope for drainage on a road surface is a tough task for even the best operators, especially toward the end a long shift. Cat Grade Control automatically maintains the cross slope as the grader moves, so the operator can focus on simply guiding the machine. That way, the machine covers more ground faster and the operator doesn't get as fatigued, because we took away 50 per cent of the effort."

Cat Grade Control allows machine operators to achieve greater grading accuracy (Photo: Cat)

Photo: Cramo Group

Sounds good, but do the technologies live up to their promise? "Yes," Thomsen said, "and we have decades of data to back those claims up."

A recent production study we did in the UAE demonstrated more than a 26 per cent improvement in productivity in both spreading and fine grading applications. The study also found that the accuracy of the job – in terms of getting the surface within the specified tolerances for slope and elevation – improved by more than 60 per cent with only a low-cost cross slope system.

"Best of all," Thomsen added, "the machine operator who participated in the study loved the system. He said it was easy to use and made him feel like a 'king of the job site' because he could work so quickly and accurately."

It only took the operator thirty minutes to get used to the system.

Carrying the load

Another job that requires consistent accuracy is truck loading. Thomsen says putting the right amount of material into a dump truck is essential. "Load in too little rock or dirt and you lose production on each trip. Load too much, though, and you risk premature wear or damage to the truck, which increases service costs." The solution is another technology system called Cat Payload. Thomsen said, "Our payload system measures the weight that a wheel loader puts into a quarry truck bed with each bucket load. It gives on-going feedback to the loader operators, so they know when each truck has its optimum load."

Payload can be supplemented by another system called 2D Project Monitoring. "It's a relatively new system that keeps accurate track of the entire hauling operation on a jobsite," Thomsen explained.

"It provides daily production totals and it tracks hauling routes and times. Basically the system is your virtual cycle counter, and enables you to detect bottlenecks that slow down production. Now your site crew can investigate and correct the conditions to keep production up."

Thomsen hastened to add, "With the standard Cat Product Link on your hauling unit, you have 80 per cent of the system already; the rest is basically just smart software."

Building the future

Grade Control and Payload are just two examples of the many advanced technologies now available from Caterpillar and other manufacturers.

"Contractors today are pushing for more and deeper technology systems," Thomsen said. "Along with telematics, they're asking for equipment management and health monitoring systems like Cat EMSolutions. We'll always need good plant equipment to get the job done, but technology is going to shape the way the construction industry grows in Africa and around the world for years to come." ■

Contracting to compact at the Cape

Working across southern Africa in niche construction, mining and industrial segments, Burma Plant Hire continues to modernise its earthmoving fleet

Diversification has been a major success factor for Burma Plant Hire (Burma), a Cape Town-based company. Burma is one of the largest in its field within the Western Cape, and a growing force nationally and internationally, which has set up branches in the Eastern Cape, the Northern Cape, Gauteng, and more recently, Namibia in September 2014.

"From the onset, our focus has been on supplying specialist plant hire solutions to the industrial, mining and construction sectors," said Theuns M A Burger, company founder, CEO and executive chairman. In July 2011, Burma joined Raubex Group Limited, a company listed on the Johannesburg Stock Exchange (JSE). There are now more than 600 units in Burma's mixed hire fleet, a core component comprising Cat earthmoving machines supplied and supported by Caterpillar's southern African dealer, Barloworld Equipment. A recent addition is a Cat 826K landfill compactor, now deployed on one of its longest serving contracts in the Western Cape.


The Cat 826K landfill compactor

Cat's 826K landfill compactor

Historically, these machines have played a major role in expanding South Africa's built environment and public infrastructure landscape. The Northern Cape mining segment especially has been a new growth market for Burma, and the neighbouring Western Cape region is good for dedicated plant hire solutions supplied to contractors working on upgrades and extensions to the Sishen to Saldanha rail line, meant for iron and manganese ore exports. Burma continues to supply for this ongoing project.

Plant hire solutions in mining include the supply of earthmoving equipment for the loading and hauling of waste materials, as well as the maintenance and construction of haul roads. Burma's mixed earthmoving fleet has seen a progressive expansion in its Cat units to meet diverse market needs in general industry, including the acquisition of four latest generation Cat 938K wheel loaders during 2014 and the delivery in January 2015 of a Cat 826K landfill compactor. "We are actively expanding our landfill business nationwide to meet the rising demand from both private and municipal markets for class-leading mechanised solutions, and our latest Cat 826K acquisition is a prime example."

A legacy of landfill performance

The machine is now deployed at the Vissershok hazardous waste site, a privately-owned landfill bordering the N7, around 30 km north of Cape Town central. The Cat 826K joins an older Cat 816H compactor on a site where Burma has been operational since inception in 2003.

The Cat 826K, powered by a Cat C15 ACERT engine, comes to market with advanced levels of efficiency, operator comfort, serviceability and safety. The cab – isolation-mounted to the frame – is pressurised with filtered air, and the selected temperature is maintained automatically. "Machine performance features on the Cat 826K include increased operating weight (at 40,917 kg compared to the Cat 826H's 36,976 kg), more power delivery, no-spin front and rear axles for better landfill traction, and a larger fuel tank for longer operation between refuelling," said Barloworld Equipment Bellville Cat sales professional Clinton Carelse. "Additionally, higher ground clearance and a re-designed belly guard provide advanced protection."

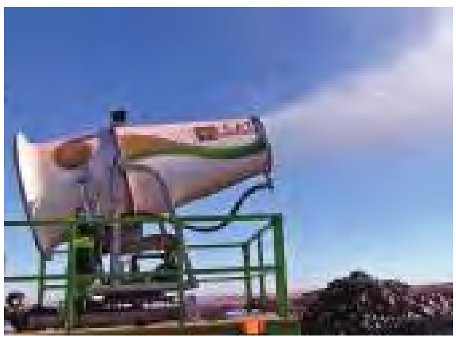
On the move, drive is delivered via a 2F/2R planetary power-shift transmission, lock-up torque converter, and heavy-duty planetary axles. For fuel saving performance, the 826K features an Eco Mode. Further fuel savings are achieved with the C15's Engine Idle Shutdown system. For operator convenience, the left pedal serves as a brake, transmission neutraliser, and engine decelerator, which the operator can use to temporarily override the engine speed set with the throttle lock for safely manoeuvring around obstacles. For optimum responsiveness and control, the 826K's STIC system allows single-lever steering and transmission control.

The hydraulically-actuated engine and power-train guards shield components and resist debris build-up; front-frame guards further prevent waste build-up in the frames and add protection for hydraulic lines, axle-wrapping and seal guards reduce the prospect of material binding around the axles, a fine-mesh air-inlet screen prevents material from entering the engine compartment, an under-hood ventilation system resists waste intrusion, and striker bars and cleaner fingers help keep the wheels clean for optimum compaction effort. Its this sort of attention to detail that positions the Cat 826K as the landfill class leader. ■

The future of wastewater treatment

Technology to improve the quality of wastewater to produce clear benefits for industry and economy

Evaporation is a quicker and more cost-effective alternative to reverse osmosis, chemical dosing and desalination in wastewater treatment applications. An environmental solutions company with a primary focus on supplying products and services that assist industrial clients in various aspects of environmental compliance, I-CAT offers innovative evaporation solutions for all industrial applications, including the removal of excess tailing dam water.



The innovative evaporation system design incorporates proprietary water purification systems

A natural process, machined for efficiency

I-CAT technical manager Morné van Wyk has indicated that the innovative evaporation system design incorporates proprietary water purification systems and misting canon technology. "Our systems have been well received by the local market, and trials prove that the concept is feasible." Van Wyk points out that the evaporation process can be carried out naturally in solar evaporation ponds, a slow process that requires a large surface area, or by mechanical evaporation machines. "Natural solar evaporation is often limited by land availability and the cost of constructing additional storage ponds, not to mention the added cost of clean-up and re-vegetation," he said.

According to van Wyk, evaporation machines can rapidly increase the evaporation process, with minimal footprint. "Space can be utilised up to 14 times more efficiently than ponds, as evaporation machines are compact, reliable and efficient, and can be transported to numerous sites."

The evaporation machines can also be used as a low-cost addition to enhance evaporation on existing containment ponds, or to minimise new pond surface area. I-CAT currently offers two different types of evaporation solutions. One is the water atomising evaporators, where air is compressed via a fan through a tapered barrel, and propels controlled-sized water droplets that are created via nozzles. "This is best for larger areas where wastewater contains lower dissolved solids or minimal particulates. I-CAT has spent a considerable amount of time in research and development on evaporation solutions, and we are in the process of introducing this option to industrial clients, as part of our value-added service offering."

The other kind is water fracturing evaporators. Through the process, water is fractured through a high-speed fan and propelled into the air. Van Wyk has stated that this solution is best-suited for smaller areas where wastewater contains high volumes of solids and large particulates. "We are currently in the process of supplying this solution to two large projects in South Africa, both of which commenced in early-2015. I believe that this could lead to considerable growth for I-CAT moving forward, as we continue to develop practical and cost-effective solutions for specific challenges experienced by our clients." ■

Developing designs for superior screens

Multotec enhances preventative maintenance to extend the longevity of trommel screens

Trommel screens are essential components in mineral and solid-waste processing industries. They comprise a perforated cylindrical drum, which is normally elevated at an angle at the feed end. As feed material spirals down the rotating drum, physical size separation is achieved. Undersized material smaller than the screen apertures passes through the screen, while oversized material exits at the other end of the drum.

Preventative maintenance is essential to ensure the longevity of trommel screens. Anthony Yell, Multotec screening product manager, confirmed, "Multotec has had trommel screens running for over ten years that are still operational."

Customers can return trommel screens for refurbishment. The rubber lining is stripped off the steel structure, visually inspected for wear and then non-destructive testing carried out to determine the integrity of the trommel structure.

"If it is still within specification it can be shot-blasted and re-rubber lined, whereupon it will be good to go for many more years," Yell explained.

"One of the biggest problems we have today with the larger trommel screens is the high wear rates of the screen media due to the high peripheral speed of the trommel screen itself."

In addition, the trend towards larger mills means higher flow rates and velocities.

"Double the velocity on a polyurethane screen equates to an increase in the wear rate by a factor of five," Yell remarked.

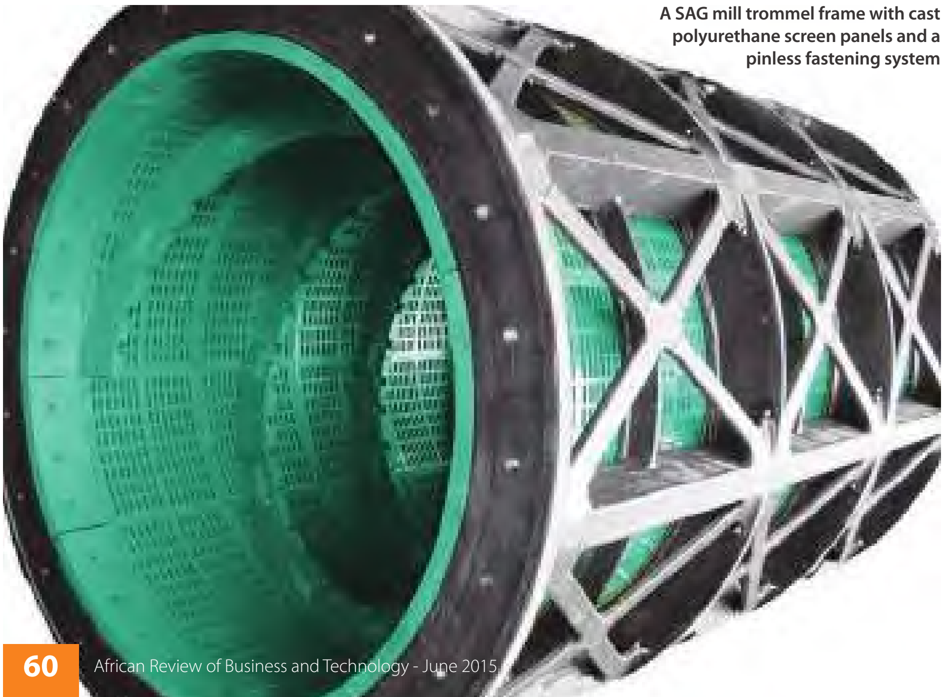
Product development

"We have invested extensive research and development into producing panels that last longer, as with large copper processing plants where the large tonnages mean an average run time of 12 to 14 weeks without any stoppages for panel change outs. It has been our objective to develop panels that will last that length of time," Yell said.

Multotec has the added advantage of being able to supply polyurethane panels for smaller feed sizes where the main wear criteria is sliding abrasion and rubber panels where impact is the wear criteria. "We design and manufacture both rubber and polyurethane panels in house," Yell pointed out. A recent trend in mineral processing has been that mills are tending to get bigger and therefore trommel screens are becoming larger as well.

"This can pose challenges in terms of acceptable life of screen media. However, we do have solutions for this," Yell said.

"The most important factor for us is understanding the trommel duty and the load coming off the end, because we have to design the front end of the trommel to be able to take this load," Yell commented. "We have focused investment in developing designs for many years and our trommel screen designs have proven themselves to be exceptionally reliable. As long as they are maintained properly in terms of the rubber lining and panel replacement, then they will last a long time."



A SAG mill trommel frame with cast polyurethane screen panels and a pinless fastening system

Specialists in screening

Multotec leads the market in trommel screen design and manufacture and has been supplying screens for more than 20 years. On which point, Yell remarked, "We deal with most of the major mill manufacturers globally. It is a highly specialised segment that was developed in South Africa and Multotec has built a reputation that now enables us to supply internationally."

The company has manufacturing plants in South Africa and Chile and can also supply spare parts from South Africa, Australia, Chile and the US, which reduces the supply chain dramatically and extends its geographic footprint.

Yell said, "We have supplied mill and scrubber trommel screens to the four corners of the earth, from South America to Papua New Guinea and Siberia to Kazakhstan. There are not many places where they are not prevalent as the Multotec product has proved to be highly reliable." ■

Taking the skyline to greater heights

SA French and Elephant Lifting Equipment are set to offer total lifting solutions across the continent

The companies are well-positioned to undertake heavy lifting tasks, as they cover the entire spectrum of lifting equipment – from consumables to tower/electric overhead cranes. Specifically, Elephant Lifting Equipment's engineering team has in-depth experience across a wide range of custom lifting projects including participation at Medupi and Kusile power stations and mines in Africa from the Copperbelt region in Zambia and DR Congo, up to the gold mines in West Africa.

According to them, operating in the sector requires a strategic combination of suitable products, well-honed knowledge and skills to allow optimum product selection for the provision of application-specific lifting solutions.

The market in Africa requires a blend of standard products and specialised bespoke lifting solutions. Products that are being supplied to Africa include chain blocks, lever blocks, webbing slings and chain slings, used for maintenance and new installations. This type of lifting equipment is quite basic and does not require any specialised input from the supplier. However, where heavy machinery is being lifted into position or large sections of a structure need to be erected, its necessary to provide a custom solution. "At such times, the technically-adept lifting solutions provider works collaboratively with riggers to ensure that the equipment being used to perform the lift is legally compliant, safety compliant and fit to undertake the task," said Elephant Lifting Equipment managing director Grant Walton.

One of the newest additions to the Elephant Lifting Equipment range is an ultra-compact steel wire rope hoist, suitable for lifting in areas where height restrictions or confined spaces are an issue. "This lightweight hoist's design allows it to be run on a smaller beam, without compromising any of its lifting capacity. In the past, close-couple hoists were used but they were impractical and also provided limited additional headroom," Walton pointed out.

The companies will be duly supported by Torre Industries Group in terms of a strong distribution network. Involvement in a number of African countries is through either a network of strategically situated local distributors and agents, through South African-based project houses or through EPCMs and end users who purchase products directly from Elephant Lifting. "Some market sectors, such as the oil and gas sector, require above average technical support and services. In these instances, Elephant Lifting Equipment would establish a branch in close proximity to the customer, such as the one in Pemba," said Walton.

Utility of tower cranes:

For several years, SA French's Potain cranes have had a constant presence across African skylines- both in the built environment as well as on mines. The ability to assess the requirements for a particular construction project, supply and erect the most appropriate tower crane solution, whilst adhering to safety and other statutory regulations, has resulted in a large African footprint for the company. SA French executive chairman Quentin van Breda stated that enabling each site - where the company's tower cranes are operational as independent entities often involves the transfer of technical and maintenance skills to the local companies – usually at the time of commissioning of the crane.

For many years SA French's Potain cranes have been a constant presence across African skylines

"Generally, the tower crane ranges used in Africa are similar to those selected in South Africa, from a one-tonne lifting capacity at 50 metre radius, right up to 10.6 tonne capacity at an 80 metre-radius. The entire spectrum of tower cranes is used, with heavy capacity cranes proving popular on mines because of the size of the machinery and components being used in beneficiation plants."

In Africa, there are still many suitable lifting applications where tower cranes are not being utilised. "This is not to say that a tower crane is necessarily superior to a mobile crane, as each has its specific market sectors. However, we do distinctly see that tower cranes are being under-utilised in general industrial applications," van Breda noted.

Operating in Africa involves an understanding of the logistical challenges, which include the remoteness of some project sites and the fact that each country has completely different cultural and business needs. The ability to adapt to each application is critical to successful implementation of projects. ■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Self-rigging crawler crane for Tanzania

Manitowoc's MLC165 crawler crane can be assembled and disassembled easily, making it an ideal purchase for East African constructors

The new crane has a high lifting power, due to two variable displacement piston pumps

Tanzania-based logistics support company Alistair Group has recently purchased a Manitowoc MLC165 crawler crane, which can be easily dismantled and transported.

The crane- nicknamed Big Red- is the first of its kind in Africa and was delivered to the Alistair Group earlier in 2015, and commissioned at the Mtwara Port in the East African nation. The initial contract will provide the port site with lift support for offshore oil and gas exploration. The Manitowoc MLC165 crawler crane can install and remove its own tracks and counterweights, and has an environmentally-efficient engine.

Manitowoc business development director Clementine James said, "We specifically purchased the MLC165 due to its amazing versatility. The machine can be disassembled and easily transported. It can be rigged up or down depending on capacity requirements and weight restrictions, and we are able to move it anywhere in the region on 11 truckloads without incurring any overweight penalties."

The crane is considered rather mobile, as it measures only three metres in width, and can assemble/disassemble itself without the aid of an assist crane. The 165 tonne-capacity Manitowoc crane is powered by a Cummins 300 HP engine. The open-loop hydraulic system, served by two variable displacement piston pumps, gives the MLC165 more lifting power than other cranes of its class. The crane is equipped with a 60 metre-boom and a 90.7 tonne hook block.

The machine complements Alistair Group's fleet of rough-terrain Grove cranes ranging from 60 tonnes to 130 tonnes in capacity. From a maintenance and servicing perspective, it made sense that the company add the MLC165 to its growing fleet. Alistair Group has Manitowoc diagnostic software and qualified technicians on site, and are supported by a Manitowoc Crane Care service engineer during the handover.

"Here in Africa, we don't have the support infrastructure that companies have in other regions," added James. "We have found Manitowoc Crane Care to be a natural partner as they give us such responsive aftermarket product support, which is imperative to guaranteeing uptime on our remote worksites."

Alistair Group's cranes are used at a number of different sites across Africa, mainly to support the oil and gas exploration industry as well as construction sites, mining projects and general infrastructure developments, including power plants, wind farms and pipe lines. ■

Work commences on an iconic bridge

Murray & Roberts Infrastructure undertakes preparatory work for the JDA on Johannesburg's Grayston Drive bridge project

Murray & Roberts Infrastructure has commenced with site preparation for the multimillion dollar Grayston Drive bridge project for main client Johannesburg Development Agency (JDA). The iconic cable stay bridge, designed by Royal Haskoning DHV, will link Alexandra and Sandton in Johannesburg and will feature three metre-wide dedicated cycle and pedestrian walkways, with protective barriers, benches, landscaped areas and artwork done by local artists.

"The award of this highly visible project to Murray & Roberts Infrastructure is testament to the company's ability in tackling technically challenging projects," said Hein Pretorius, contracts manager at Murray & Roberts Infrastructure. The construction programme will commence with site preparation for the approximately 70 miles that will be required for the cable-stayed bridge.

"The most difficult challenge associated with the project is its location over the M1 motorway, one of the busiest freeways of its kind in Africa. We have already conducted traffic management studies to ensure that the construction programme progresses smoothly with minimum disruption to motorists," Pretorius added. The project is scheduled for completion in October 2016.

Members from the Johannesburg Development Agency and Johannesburg Mayoral Committee Members at the official sod-turning ceremony for the Grayston Drive Bridge project

The dual pedestrian and cycling bridge forms part of a dedicated five km route from the Alexandra informal settlement to the heart of the Sandton Business District. It will link up with the Rea Vaya Bus Rapid Transit (BRT) Phase 1C as well as the Louis Botha 'Corridor of Freedom' transportation infrastructure project being implemented by the JDA in Greater Johannesburg.

The bridge contract joins a long list of flagship projects that Murray & Roberts Infrastructure is involved with currently. In terms of roads contracts, Murray & Roberts Infrastructure is advancing with the 22-month contract awarded to it by the Trans African Concessions (TRAC) for an upgrade of the strategic N4 toll road. Road rehabilitation contracts are well underway in KwaZulu-Natal for the South African National Roads Agency SOC Ltd (SANRAL), and the company recently secured the contract, also for SANRAL, to rehabilitate a 27.5 km-long section on the R72 from Port Alfred to Fish River in the Eastern Cape.

On the renewable energy front, the company is building three wind farms in the Northern Cape, with a combined capacity of 360 MW, for client Mainstream Renewable Power.

"These are major contracts that speak to our overall capability of carrying out logistically complex infrastructure projects," said Eric Wisse, managing director of Murray & Roberts Infrastructure. "The diversity of the projects we are involved with – from wind farms to roadworks to the Grayston Road Bridge – is testament to the 'engineered excellence' approach that underpins both the company and the larger Murray & Roberts Group."

> "The Grayston Drive bridge project is an iconic project, which will link Alexandra and Sandton in Johannesburg and will feature cycleways, walkways as well as landscaped roads

Murray & Roberts Infrastructure was in attendance at the official sod turning ceremony hosted by the JDA at the beginning of March, which marked the beginning of the construction phase. The auspicious event was attended by Johannesburg Mayoral Committee Members (MMC) Councillor Christine Walters (Transport), Councillor Roslyn Greeff (Development Planning and Urban Management) and Councillor Sello Lemao (Public Safety).

Speaking at the ceremony, MMC Walters said the project was aimed at transforming the public transportation system in the northeast of Johannesburg. "A transport study has revealed that as many as 10,000 pedestrians walk and cycle between Alexandra and Sandton each day.

"This bridge and the surrounding infrastructure will transform and unite these areas. The bridge, which will be styled along the same lines as the Nelson Mandela Bridge in the Johannesburg inner city, literally bridges the divide between these two contrasting communities and creates a visual gateway into the economic heartbeat of our city," MMC Walters said. ■

Bringing new tech into the mixture

PMSA's new low-cost, high-performance self-loading concrete mixer for, as showcased at Totally Concrete

Based in South Africa, manufacturing a range of concrete block, brick and paving machinery, turbine and counter-current pan mixers and batching plants for the concrete, refractory and ceramic industries since 1976, PMSA servicing the needs of local and overseas customers. It has developed a successful business over four decades. The company's brick-making machinery produces two million bricks a day in the Johannesburg area alone.

Emerging at an affordable price

PMSA sales and marketing manager Quintin Booysen spoke recently about the Fiori DBX35, a new product that fills a gap in the local market for an affordable and reliable self-loading concrete mixer, offering users accurate measurement without the need for additional equipment. He said, "It is the ideal self-loading mixer for the price-conscious customer, and therefore, I am confident of obtaining measurable market share across sub-Saharan Africa."

The new Fiori DBX35 is designed specifically for emerging markets in Africa that require high-quality concrete on demand at a more affordable price. It was unveiled at the Totally Concrete 2015 exhibition at the Sandton Convention Centre, Johannesburg in mid-May by PMSA, the largest supplier of concrete brick, block and paving-making machinery and technology in Africa.

The new Fiori DBX35 self-loading concrete mixer was unveiled at Totally Concrete 2015 by PMSA

An enhanced design

The new Italian-designed and manufactured DBX35 forms part of an entire range from Fiori, with a smaller and larger unit available as entry-level machines. To make the DBX35 more affordable, all non-essential parts were removed and certain design aspects adjusted. Fiori's quality standards have, however, remained uncompromised. Two major design enhancements are the introduction of front loading arms and a grab bucket, which replaces the standard bucket found on other Fiori machines. This design change was implemented as a cost-saving benefit for up-and-coming contractors unable to afford a capital-intensive weighing system for material measurement.

"The Fiori DBX35 is the ideal self-loading mixer for customers, who have not budgeted for a separate weighing system to measure all aggregates, as the grab bucket allows the user to measure materials more accurately when loading the bucket, which can be filled up to 90 per cent capacity. This is not possible with a standard bucket design," explained Booysen. The Fiori DBX35 self-loading mixer offers additional benefits to the African market, including more accurate volumetric loading and reduced loading times, thanks to the positioning and inclination of the drum. Its compact design also results in considerable transportation savings. "Two Fiori DBX35 self-loading mixers can fit into one standard 140sqm shipping container, which halves transportation costs when compared to other similar-sized competitor mixers. This is another major value-add in terms of ensuring affordability, without compromising on efficiency or reliability," Booysen said. ■

Hydrostatic dumpers handle tough sites

Effective fleet management to address specific requirements for reliable, robust construction equipment

Hydrostatic drive unit concrete dumpers are ideally suited to the arduous operating conditions found on many African construction and building sites. Devin van Zyl, CEO of Lambson's Hire, confirmed recently that the South African firm has stocked its fleet with Wacker Neuson 1.6 ton and 3 ton dumpers to meet customer demand for reliable and hardworking equipment.

Van Zyl explained that many dumpers suffer from gearbox failure, resulting in unwanted downtime and frustration for customers. He remarked, "By opting for hydrostatic drive units this problem area will be eliminated. Feedback from customers, combined with extensive research and testing, forms the basis of all our equipment choices. We need to know that the machines we send to site will perform according to spec and remain operational for as long as possible. While adequate maintenance plays a large role in the uptime of our equipment, it is even more important to make the right selection upfront."

Hydrostatic drive unit concrete dumpers, available from Lambson's Hire, are ideally suited to the arduous operating conditions found on South African construction and building sites

The heavy duty mid-size dumper range provides greater utility for building processes and logistics. The swivel-tipping skip, available on both the 1.6 and 3 tonner, comes with a 180° tilt facilitating precision dumping of material and is perfect for applications where exact placement of concrete is a prerequisite.

The range features hydrostatic permanent two-wheel drive on the 1.6 ton and twin-lock four wheel drive on the 3 ton as standard. This makes on site travel, at continuously variable speeds of up to 16km/h on the 1.6 ton version and 25km/h on the 3 ton version, effortless even on the roughest and most uneven surfaces.

Maximum use, minimum maintenance

Operator-friendly hydrostatic controls are provided by the hydrostatic drive system, eliminating the need for gear changes whilst driving. The operator is thus able to concentrate on negotiating around and over any site obstacles, making these dumpers extremely easy and safe to use. The dumpers feature a clearly laid out instrument panel and have wide, robust leg protection, further adding to operator ease of use.

The absence of a clutch and gears means that maintenance is reduced to a minimum, resulting in maximised operational time on site and minimised overall operating costs.

Lambson's Hire has stocked its countrywide fleet with Wacker Neuson 1.6 ton and 3 ton dumpers to meet customer demand for reliable and hardworking equipment

Ideal applications

The dumpers are ideal for surface construction work, civil engineering, road building, quarrying, industry, demolition and rubble handling, waste disposal, forestry, farming, landscaping and public works.

Van Zyl said, "The success of our fleet is based on understanding exactly which equipment works in specific environments. Our team is able to consult with customers and provide them with the right item of plant for their particular application. The selection is based on a number of factors including intended use of the equipment, site conditions, hours of service required and whether other complementary equipment is being used. Through the extensive experience our skilled personnel have garnered over the years, they are able to take the tedium out of plant selection for our customers."

CAVATORTA'S HIGH SECURITY FENCING consists of welded mesh panels in zinc/aluminum alloy galvanized wire and rectangular mesh. Virtually impossible to climb or cut, **HSF** main feature is the closeness of the horizontal wires which makes it extremely difficult to penetrate using conventional hand tools, maintaining a high level of security whilst giving excellent visibility through the mesh.

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TEST OF TIME

Energising African mines amidst a crisis

Standby power in the DRC helps both to guarantee and stabilise electricity generation for copper miners

The Cummins APS motivators in the first phase

A R31mn (US$2.6mn), fully-integrated 7,500kVA standby power solution has been recently installed in the Democratic Republic of Congo (DRC), following the successful design, assembly and testing of the modular plant by Johannesburg-based electrical and mechanical engineering solutions enterprise Amalgamated Power Solutions (APS).

APS specialises in the provision of comprehensive turnkey power generation solutions for industries across Sub-Saharan Africa. The company's flagship achievement is the completion of the Kinsenda Copper Mine standby power generation solution, which is capable of providing a reliable alternative power source in the event of an outage within just 20 seconds - a world-class response time.

The promise of power

According to APS technical director, Andrew Strömbeck, this cradle-to-grave solution boasts unrivalled technical efficiency on a global scale, and will enable the mine to run its ore processing plant at full capacity without experiencing any stoppages whatsoever, regardless of power outages.

"Ore processing plants run 24 hours a day, 365 days a year. Just 30 seconds of stoppage can result in up to two days of costly downtime. APS has therefore provided the client with the peace of mind that, even in the event of power failure, no downtime will be experienced, thanks to a highly sophisticated solution that few

The Cummins APS DRC motivator during installation companies in the world are able to match," Strömbeck explained.

Strömbeck added that the Kinsenda Copper Mine standby power generation solution is comprised of three fully integrated 2,500kVA diesel generator sets (gensets) manufactured by Cummins, amongst the most prominent firms in the manufacture, sales and servicing of diesel engines and related technology.

"Part of our success lies in the fact that we are flexible with component suppliers to ensure that we provide turnkey solutions to our clients. It is, however, important to be entirely aligned with certain original equipment manufacturers (OEMs) to ensure the highest standards of quality, reliability and effective after-sales service, and this is certainly the case with Cummins," he said.

In addition to the Cummins gensets, which weigh 32 tons each, the standby solution also consists of three 9 000-litre diesel tanks that were transported in 12m-high cube containers in nine trucks, which successfully reached their final destination in the Katanga province of the DRC recently.

The Cummins APS motivator in the DRC

Local manufacture

Although the challenge of unpredictable and unreliable power supply in the African mining sector is further compounded by bureaucratic business regulations, APS managing director Rob Pellizzer indicated recently that the company assists its customers in overcoming these lengthy and costly issues through its value-added holistic solutions offering.

"Many African countries require foreigners who have been in the country for more than 21 days to obtain a work permit, which makes it challenging for companies to enter the market effectively. APS experts assemble and test all components at our Johannesburg facility, before completing relevant paperwork to ensure that they can reassemble equipment onsite anywhere in Africa," he said.

Pellizzer maintained that this service delivery excellence places APS ahead of the competition.

The backup power generator at Kinsenda Copper Mine is now fully operational. "Few competitors are able to boast this combination of high-quality solutions that are available in quick turnaround times, and this bodes well for our future business dealings."

Industry experience

APS was established in early 2013 by Strömbeck, who boasts over 45 years of industry experience.

"We are a streamlined operation, with a team of 36 factory workers and engineers that undertake all component assembly and mechanical engineering at the company's 1,600 m2 under-roof facility.

Although the company is new, many employees have vast experience working alongside each other in the corporate environment. This has enabled us to obtain such a large contract despite our generally small footprint," he said.

APS sales manager Kirsten Knox is confident that the company's early success looks set to continue in the foreseeable future.

"Part of our business strategy has been to target larger projects such as the Kinsenda Copper Mine. As investment in Africa continues to become more lucrative, while inconsistent power supply remains a real threat, APS holds the potential for measurable growth through its comprehensive and turnkey backup power generation offering."

Knox believes that potential for growth extends across numerous sectors, including: mining; industrial; retail; healthcare; and food and beverage industries. "We have been awarded a second high-profile mining contract in Ghana, having been selected ahead of multinationals and global competitors. I believe this will serve as a catalyst for growth across other sectors too."

Rex Attorneys partners with ENSafrica in Tanzania

Law firms ENSafrica and Rex Attorneys have joined forces to form ENSafrica | Tanzania.

"Our vision is for ENSafrica to be the first fully integrated, world-class African law firm - the legal destination of choice when it comes to doing business in Africa. Launching ENSafrica | Tanzania is part of this vision and we plan to open further offices throughout Africa during the course of the year," said ENSafrica chief executive Piet Faber.

Tanzania is an important jurisdiction for those doing business across Africa due to, among others, its stable business environment, its abundance of natural resources and the forecasted growth of its economy over the next five years.

ENSafrica | Tanzania is based in Upanga in the country's commercial capital, Dar es Salaam, and provides a full-service offering, covering a wide range of business areas, including mining; oil and gas; energy; banking and financial services; competition; employment; intellectual property (IP); telecommunications; insolvency; legislative and regulatory regime review; as well as commercial litigation and arbitration.

Dr Alex Thomas Nguluma, managing partner at ENSafrica

Ambassador Mwanaidi Sinare Maajar, chair of ENSafrica

Ambassador Mwanaidi Sinare Maajar, a seasoned corporate and mining law practitioner who was previously Tanzania's High Commissioner to the United Kingdom and Tanzania's ambassador to the United States of America, is the chair of ENSafrica | Tanzania. Dr Alex Thomas Nguluma, a renowned senior corporate and tax law practitioner, is the managing partner.

"The opening of ENSafrica | Tanzania is an exciting step in the Tanzanian legal market," said Ambassador Maajar. "We believe that the combination of our expert knowledge of the local market, and the breadth and depth of experience and specialist expertise which is now available to us across Africa, will provide real value to our clients."

"The launch of ENSafrica | Tanzania has certainly expanded our capability in the country and we are looking forward to offering our clients a new level and depth of legal services spanning all the key corporate areas of law and business," said Dr Nguluma.

ENSafrica now has offices in Burundi, Mauritius, Namibia, Rwanda, South Africa, Tanzania and Uganda, which operate as one firm across Africa, affording our clients a world-class service, fast turnaround times and an extremely cost-effective offering, wherever they choose to do business.

Petro.t.ex Africa addresses industry challenges

Africa's petroleum and petrochemical industry faces many challenges - including climate change issues, fuel security and the falling oil price. These were addressed at the recently-held Petro.t.ex conference and exhibition, a major mid- and down-stream event focused on showcasing products, services and business opportunities across Sub-Saharan Africa.

Event organiser Bette McNaughton reported that the key focus of the conference were the updates for the liquid fuel and downstream industry, and that current topics covered also included "the overall status of the liquid fuel industry in South Africa, climate change, alternative fuels, and the revised Broad-Based Black Economic Empowerment (BBBEE) Codes for the retail fuel market".

With respect to the state of South Africa's oil industry, attendees learned not only that about 95 per cent of SA's crude oil demand is met by imports from the Middle East and the rest of Africa, but also that - with estimated reserves of over nine billion barrels of oil beneath South Africa's coastlines - many drilling and business opportunities exist, which could give the country some small measure of independence from imports.

Implications of the Revised BBBEE Codes for the retail market were highlighted in a presentation by Bakang Moeketsi, CEO of the South African Petroleum Retailers' Association (SAPRA). He said, "The promotion of broad-based black economic empowerment is a primary objective, as is the need to achieve a globally competitive mining industry that benefits all South Africans. The revised Codes combine management control and employment equity into one element, as does preferential procurement and enterprise development, thus reducing Scorecard elements from seven to five."

Geovariances launches Minestis

Geostatistics specialist Geovariances has launched Minestis, a software solution dedicated to mineral resource estimation. Minestis offers a fast and easy-to-use workflow for domain estimation and mineral resource modelling through a simplified and secure geostatistics-based approach.

Geovariances software development manager François Geffroy said, "When designing Minestis, our main objectives were: firstly, to offer our customers a new generation mining-focused software solution that non-experts in geostatistics can learn and implement easily; secondly, that this new software ensures the quality and the performances of the geostatistics our leading software Isatis is renowned and referenced for. As a result, Minestis simplifies resource estimation and quickly delivers reliable estimates".

Minestis provides a workflow which takes the user through every step of its resource modelling project. The software starts with the loading of already built grade shells or geological surfaces and verifies that geological domains are coherent with each other. It goes on with a geostatistics-based estimation process which gives users access to the only parameters they need to control through a smart user interface. It quickly ends up with the production of the recoverable resource figures required for subsequent resource classification.

Minestis implements powerful parallellised geostatistical algorithms: kriging, conditional simulations, uniform conditioning and localized uniform conditioning. Additional tools such as automatic variogram fitting or kriging neighbourhood analysis, combined with a modern interface, facilitate software use and parameter setting. Early users also reported that Minestis is fast and visual.

Construction and Mining

Bell Equipment reveals new rigid trucks

"We are hugely satisfied with the result of Intermat 2015," said Gary Bell, CEO of the global ADT specialist **Bell Equipment**. "The international attendance clearly reflected the local market situation, with a little but very interested overseas fraction...With all our global mar-ket regions represented through their respective branches on the Bell stand, we were able to fully reach our aim, to use Intermat 2015 as a broad platform to present our latest products and to inform about our continuous R&D activities and further improvements in our customer-oriented service and after sales operations."

In Paris, Bell Equipment shared information about the development of its upcoming B60E truck.

With this 'sectional model' Bell Equipment also presented its new Mer-cedes-Benz engines at Intermat, which now feature on the smaller E-series trucks B25E and B30E

"As a completely new concept, the B60D introduced last year is proving to be very successful in several markets. In South Africa, mining companies are looking to replace their fleets of 60-ton rigid trucks with Bell B60Ds, with some deals already concluded. The practical experiences of these operations show substantial advantages of the articulated 4x4 over its rigid competitors in terms of all-weather performance and costs. All field testing results are being directly considered during the final development of the Bell B60E," said Marc Schürmann, Bell Equipment's director of European operations.

Hatz exhibits its 4H50TI engine

At Intermat 2015 German engine manufacturer **Motorenfabrik Hatz** presented another version of the 2-litre turbo engine 4H50TIC, which was introduced in 2014. The '4H50TI' was developed specifically for export to countries where only diesel fuel with high sulphur content is available.

With the two engines 4H50TIC DPF and 4H50TI (Tier 2/Stage II), Hatz Diesel in fact held the world premiere of two more variants of the 4-cylinder turbo engine at Intermat. Now, with the 4-cylinder 2-litre industrial diesel engine 4H50TIC, equipped with the Bosch common-rail system, there is a total of three variants, which are now available worldwide.

By adapting existing components such as common rail, injectors and high-pressure pump and because of the elimination of sulphur sensitive components such as exhaust gas recirculation (EGR) and oxidation catalyst (DOC), the engine can be operated with diesel fuel with a sulphur content of up to 5,000 ppm. Because of the elimination of the exhaust after

The Hatz 4H50TI is especially designed for diesel fuels with high sulphur content

treatment and due to the requirements of the emissions legislation, the 4H50TI can be operated with higher performance. The maximum output is 62kW and the maximum torque 265Nm. At just 158kg, the total weight of the 4H50TI is considerably less compared to the Tier 4/Stage IIIB version, the 4H50TIC. Because of the elimination of the EGR, the specific fuel consumption of 218 g/kWh at the best point is slightly higher than the values of the basic engine. The 4H50TI will be available from autumn 2015.

Haulotte's three decades of R&D

Celebrating its 30th anniversary at Intermat, **Haulotte** highlighted its sustained investment in research and development to provide a continuous pipeline of simple, robust and reliable products to users of people and material lifting equipment, Three decades of proximity to its clients has reinforced a customer-centric approach, encapsulated in the Intermat showcase, which presented the company's entire offering, from Financing advice to after-sales servicing.

Notable on the stand were the new HA20 RTJ articulated boom, the rough-terrain articulated boom HA16 RTJ Pro, and the rough-terrain telescopic boom HT23 RTJ.

In particular, the 20m HA20 RTJ is designed to deliver an optimal level of performance to meet three objectives: maximising productivity, taking care of the budget and ensuring the safety of the operators. Small sister of the new 20m articulated boom, the HA16 RTJ Pro has four wheel-drive, a 360° continuous turret rotation, oscillating axle, and Haulotte Activ'Shield Bar. The HT23 RTJ is an aerial work platform offering best-in-class performances.

The rough-terrain telescopic boom HT23 RTJ

Construction and Mining

Hitachi's new hybrid wheel loader

Equipment manufacturer **Hitachi Construction Machinery Co, Ltd (HCM)** has unveiled its first mass production hybrid wheel loader at the 2015 Intermat exhibition in Paris, France. The innovative new ZW220HYB5 Hybrid has been designed and constructed at HCM's wheel loader factory at Ryugasaki in Japan.

It has been developed as part of HCM's quest to manufacture an ecofriendly product, which will use significantly less fuel than it did in 2010. This is in response to the world's focus on protecting the environment and as a result of The ZW220HYB5 incorporates 100 per cent proven Hitachi group technology from the bullet train and EHseries dump trucks, which has been specially developed for the hybrid wheel loader.

The ZW220HYB5 is easy to operate; using travel motors rather than the conventional transmission, there are no jolts when digging or climbing uphill

To achieve this, the ZW220HYB5's four-cylinder engine powers a generator, which produces energy to drive two electric travel motors. When the machine is rolling or braking, it continues to store electricity in a capacitor. Under acceleration, it uses energy by the generator and the capacitor, and so less revs are required when it reaches normal travel speed.

The control units are the key to the electrical power process and engine operation. For example, when lifting and loading automatically the engine rpms increase in regards of the load – and there is no need to use the accelerator pedal.

JDPS telematics deliver off-road

John Deere is one of the few manufacturers to build engines exclusively for off-highway applications. Its engines deliver performance, power, fluid efficiency, reliability, easy installation and emissions compliance to both generator set manufacturers and end-users. John deere Power Systems (JDPS) offers an extensive lineup of standby and prime generator set engines that meet emissions regulations around the world while delivering quick-starting, clean-running and fuel-efficient performance. The full JDPS lineup generator drive engines ranges, in displacement from 2.9L to 13.5L, covers generator drive ratings from 31 to 563kWm (42 to 755hp) - and, critically for operators in African markets today, include non-emissions certified, EU Stage II and Stage III A models as well as EPA Tier 3, Interim Tier 4 and Final Tier 4 products. Throughout the range, the design emphasis is on low cost of operation, optimal equipment performance and reliability.

One important innovation with respect to operators everywhere is the introduction of a new telematics package, to help reduce downtime and therefore costs. Launched at Intermat 2015, John Deere's Powersight telematics system combines several monitoring functions evaluating machine performance, and a web-based remote diagnostic service, which has been developed to assist with improving uptime of equipment. The system is designed to help its customers "achieve more uptime, increased profitability and greater productivity", according to John Radke, manager worldwide customer support at John Deere.

Geoff Stigler, John Deere's director of marketing support, EAME region, advised that the new telematics system enables diagnosis of any potential systems issues remotely, which will prove particularly useful to operators. He added Powersight has been designed to communicate with contractors through mobile phones or tablets, providing live monitoring so that any issues can be identified at an early stage.

Terex Finlay's new 693+ Spaleck

The new **Terex Finlay** 693+ **Spaleck** represents real development in mobile screening and separation technology. This new product offering is the result of a joint partnership between Terex Finlay, pioneers in mobile tracked processing equipment and Spaleck, a leading specialist in static recycling screening technology.

At the heart of the mobile plant is the two-deck German-designed and constructed high performance screenbox. The innovative screenbox combined with state of the art flip flow technology on both the top and bottom decks catapults the Finlay 693+ Spaleck into a class of its own.

The screen mats on both the top and bottom deck Flip-Flow screens are fastened without screws and have no edges that could cause difficulties and snagging. This means that the screen mats can be changed quickly and there is an optimal product flow over the screen mats at all times. Even large-grained material can be screened on a screening machine with a Flip-Flow screen deck.

Terex Finlay has launched the new 693+ Spaleck 3D Flip-Flow screen

Its processing capabilities and application flexibility make the machine the ultimate tracked mobile solution for the processing and separation of recycling materials such as incineration slag, shredder light and heavy fraction, scrap metal, electronic scrap, C&D, C&I, bulky waste, compost, plastic fractions, biomass, topsoil, ore and aggregates, etc.

Volvo Penta flexes its muscles at Intermat 2015

Engine manufacturer **Volvo Penta** has exhibited two new diesel units at Intermat in Paris, France, alongside presentations by sister companies **Volvo Construction Equipment** and **Volvo Trucks**. The company made an impression with the latest additions to its engine lineup - the new five- and eight-litre off-road diesel engines. Developed in coordination with the Volvo Group, the robust, reliable D5 and D8 engines feature a newly-designed platform. Displacement has been increased compared to previous versions, and the new engines offer improved engine block stiffness, as well as higher torque at low speed. But despite a larger displacement, fuel consumption is reduced by as much as 2.5 per cent. The new engines are available to meet Stage II/Tier 2, Stage IIIA/Tier 3 equivalent and Tier 4 Final/Stage IV emissions standards - meaning that, no matter where a manufacturer exports its products, Volvo Penta has an engine to match the market's emission regulations.

The new Volvo Penta D8 off-road diesel engine was promoted at Intermat 2015

All of Volvo Penta's engines, regardless of emission stage, share a common footprint, with components like the turbocharger located in the same place on all models - making design and installation easier for OEMs.

The presence of the three Volvo companies at Intermat underscored Volvo Penta's synergies with its sister businesses. Volvo Penta enjoys significant advantages as part of the Volvo Group: not only does the company benefit from the Group's brand heritage and considerable R&D muscle, but Volvo Penta can also capitalize on Volvo CE's knowledge and expertise in the construction market.

In the aftermarket, Volvo Penta is also working to expand its service network by partnering with Volvo CE dealers around the world. Already, Volvo Penta has joined up with its sister company's dealers in Australia, South Africa and Russia, and more partnerships are expected to come - extending the company's reach and taking advantage of these dealers' experience in the construction industry.

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- 03 **Educational/Research Institutes**
- 04 **Industry/Manufacturing**
- 05 **Agricultural & Agro Industries**
- 06 **Commercial Services**
- 07 **Building/Construction/Mining**
- 08 **Import/Export Agents, Distributors**
- 10 **Commercial Transport**
- 16 **Others,** Please specify ....

Upcoming unreserved auctions

- Dubai, UAE | June 2 & 3
- St Aubin sur Gaillon, France | June 11
- Ocaña, Spain | June 16 & 17
- Moerdijk, Netherlands | July 2 & 3
- Donington Park, UK | July 14

CATERPILLAR D10T & D10R

2 – 2007 KOMATSU D155A-5

UNUSED – 2011 CATERPILLAR 950H

2 – 2011 CATERPILLAR 740B

2 / 3 – CATERPILLAR 773D

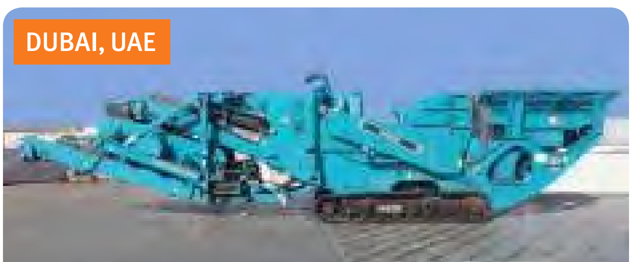
2 / 3 – LIEBHERR LTM1055-1 55 TON 6x6x6

2008 NEW HOLLAND E215B

4 / 6 – CATERPILLAR 320CLU

2009 TEREX FINLAY 883

2010 KOMATSU PC800-8



2012 POWERSCREEN XH320SR

UNUSED – 2015 ATLAS COPCO PC1055J

3 / 10 – UNUSED – 2015 DYNAPAC CA255

3 – 2011 MERCEDES-BENZ 3341 6x4 w/ SANY 40M

2010 RENAULT KERAX 450-26T 6x4 w/ EFFER 45-4S

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