

# African Review

May 2015

of BUSINESS and TECHNOLOGY



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## Driving renewable energy growth

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# Editor's Note

This issue of *African Review of Business and Technology* explores the principal themes of finance and technology between pages 22-29. In this edition, banking and mobile communications services are explored in-depth; the finance section of this issue looks at how these services are reaching people across Africa and how new technology 'enablers' are changing lives. An appraisal of the contribution of technology to Africa's economy is featured on pages 28-29, addressing how operational information represents a potential goldmine for capital-intensive industries. Between pages 30 to 42, Africa's power sector is examined closely, with a focus on renewables. From pages 44 to 67 there is coverage of both the construction and mining sector. Equipment solutions are explored between pages 68-70. The benefits of loader/haul truck combination and why it is an ideal material-handling solution for most surface mining operations is outlined in this issue. These machines are widely used in road construction, for dealing with municipal waste, and in large-scale farming too. Africa's biggest construction and equipment companies are also highlighted in this edition of *African Review of Business and Technology*, with reports on key manufacturers and distributors serving the continent's constructors and contractors with the latest, most innovative machines.



Main cover picture: PhotoSky  
Inset, top left: Andrea Slatter

Andrew Croft, Editor

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# Agenda / North

## SEFA to support solar power in Chad

The Sustainable Energy Fund for Africa (SEFA) has approved a US\$780,000 preparation grant for the development of a first phase 40MW of the Starsol Solar PV Plant near N'Djamena in Chad as the first Independent Power Producer (IPP) scheme to be connected to the national grid. Specifically, the SEFA grant will finance the costs related to technical assistance for the completion of the plant design and grid study, as well as advisors for legal and financial structuring of a bankable IPP.

The success of this project will have significant demonstration effects in the country's power sector and provide reliable power to address power shortages hampering economic growth. Implementation of this project first phase will help to increase the installed capacity by 45 per cent, generate around 64GWh of electricity per year and provide electricity to the equivalent of 16,871 households in the area of N'Djamena as well as to the

corporate and public sectors. It will also contribute to diversifying the country's energy mix with a clean energy source and to promoting technology transfer, thus stimulating the creation of skilled and semi-skilled jobs. Finally, the project will help Chad meet its growing electricity demand with an endogenous, abundant and carbon-free source.

The project aligns with the Chad Government's focus on the development of renewable energies as a national energy policy priority, in a country where less than two per cent of the population has access to electricity and the electricity generation costs are high (FCFA 345/KWh, US\$0.65/KWh) as most of it is provided by private diesel generators. The project is also aligned with the African Development Bank Climate Change Action Plan 2011-2015 and Energy Policy, as well as the Bank's Strategy 2013-2022 which focuses on the twin objectives of inclusive and green growth in the continent.

## Morocco looks to wind energy

Morocco is developing renewable energy sources, as it imports almost 94 per cent of its energy needs.

"Persevering in this direction [energy pricing] could help Morocco emerge as a regional leader in energy sector reform, as well as in the renewable energy technologies in which it has a natural advantage," stated the International Energy Agency (IEA).

Morocco also has good potential in hydroelectricity, in addition to its high solar and wind energy potential. The country's government knows that it cannot continue relying on imports, as energy consumption has been rising steadily at more than five per cent a year over the last decade. Morocco has followed a procedure to use specialised administrative bodies to make the necessary laws and has sought the assistance of global organisations to make renewable energy and efficiency improvement a key priority.

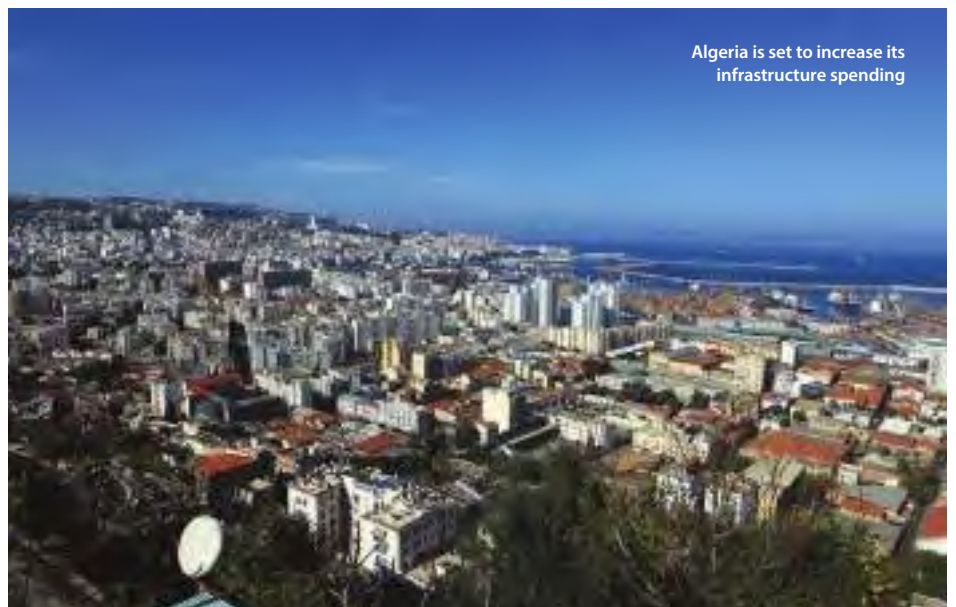
## Algeria to invest US\$215bn in infrastructure

Algeria is set to invest US\$215bn in publicly funded infrastructure during 2015-2019, in hospital construction and renovation, transportation infrastructure, wastewater management and desalination, and ports/airports. The biggest portion of this public expenditure will fund the construction of five hospitals, and the restoration of around 15 hospitals, according to a statement.

Algeria is expected to increase its current infrastructure spending through its sovereign wealth fund, also referred to as the Fonds de Régulation des Recettes (FRR), the Algerian government said.

The investments in public infrastructure will create opportunities for US firms throughout the infrastructure supply chain.

A webchat on 16 April involving the US ambassador to Algeria Joan Polaschik discussed US - Algerian relations, and the growing Algerian government interest in US



Algeria is set to increase its infrastructure spending

commercial engagement, said the statement. They provided briefings on the Algerian business climate, and the operating

environment within the infrastructure sector, which were followed by a question and answer session, it added.



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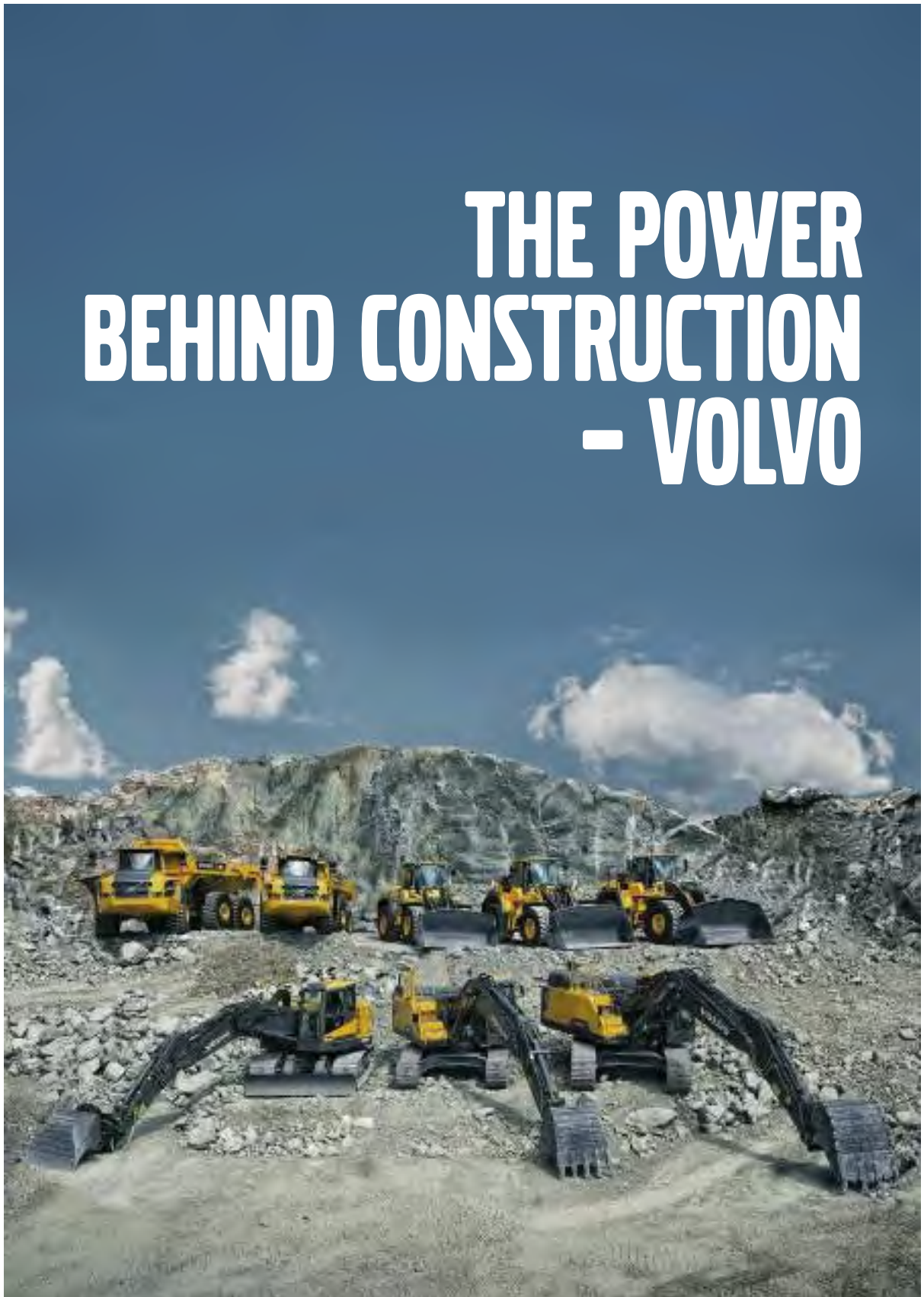
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# Agenda / East

## KPLC set to scale-up Kenyan electricity service

Over 630,000 Kenyans will benefit from access to electricity, existing consumers will enjoy better quality of electricity services, and the Kenya Power and Lighting Company (KPLC) will be financially stronger, on completion of a new Kenya Electricity Modernization Project, following the arrangement of a World Bank-approved US\$457.5mn financing package comprising an International Development Association (IDA) credit of US\$250mn, an IDA guarantee of US\$200mn and a US\$7.5mn grant from the Strategic Climate Fund Scaling-up Renewable Energy Programme. The IDA guarantee will enhance KPLC's credit quality and enable it to raise about US\$500mn of new commercial debt with lower interest rates and longer tenors to replace existing debt that is placing a heavy burden on the company.

"We are making this significant and innovative investment in Kenya's power sector to expand electricity access to low income households and small businesses as part of the nation's push for shared prosperity," said Diarietou Gaye, World Bank country director for Kenya. "Modern, reliable electricity will improve the quality of life of Kenyans and underpins enhanced competitiveness of the Kenyan economy."

## Dr Christie Peacock praised for work in Kenya

Dr Christie Peacock, former chief executive of charit, Farm Africa and founder and chairman of SIDAI Africa, has been presented with a Social Entrepreneur Award by the Schwab Foundation. Farm Africa supports farmers who are faced with challenges in building food and income security; enabling them to grow a better and reliable future for their families.

Dr Peacock eventually set up SIDAI Africa, which offers high quality veterinary services, targeting pastoralists and smallholder farmers in Kenya. SIDAI is the result of Dr Peacock's years of service to African farmers. Studying agriculture at the University of Reading, her first visit to remote northern Kenya to study nomadic pastoralists inspired her PhD research on the Maasai, one of the first systematic studies of traditional sheep and goat management practices in Africa.

Dr Peacock focused her efforts in exploring the role of women. In 1988, with a year's funding from Band Aid, she set up Farm Africa's first goat project in Ethiopia. This enabled widows with crossbred goats to give families a stable source of nutrition and an asset to sell when they are struggling to make ends meet. Dr Peacock swayed the Ethiopian director of Veterinary Services into allowing her to train women as

community animal health workers to provide basic care to the goats. The success of the model led to similar projects being developed by Farm Africa and other agencies.

Dr Peacock carried on her work for Farm Africa, gaining the post of chief executive in 1999. Under her leadership the organisation grew into a highly-regarded, professional organisation with a yearly income of US\$12mn, working in Ethiopia, Kenya, Tanzania and Uganda. In 2010 Dr Peacock left the position of chief executive to pursue another goal. She set-up SIDAI, which is a social enterprise. It aims to provide high-quality, low-cost livestock services in rural Kenya. Each centre is owned and managed by qualified professionals and offers animal husbandry and health services to farmers and pastoralists. The social enterprise aims to roll out 150 franchises across Kenya.

In 2014 Dr Peacock was presented with a CBE for her services to improve the lives of Africa's poorest and most isolated farmers.

Nigel Harris, CEO of Farm Africa stated, "Farm Africa is delighted to congratulate Dr Christie Peacock on her award from the Schwab Foundation as one of their chosen Social Entrepreneurs for 2015."

## NSSLGlobal and the BBC deliver live 'bonded HDR' satellite video broadcast

NSSLGlobal worked with the British Broadcasting Corporation (BBC) recently to enable the corporation's first live 'Bonded HDR' (High Data Rate) satellite television broadcast. An episode of the BBC's 'The One Show', which was broadcast on 5 March 2015, featured Lenny Henry live from the Iyolwa Health Clinic, Uganda, as part of the 'lead-in' to BBC's Comic Relief programming a week later. In the broadcast, Henry showed the audience the results of a major refurbishment funded by Comic Relief money.



The BBC's first live 'Bonded HDR' (High Data Rate) satellite television broadcast took place in Uganda

HDR video services typically transmit at around 650-700kbps. But by 'bonding' two portable BGAN Explorer 710 satellite terminals (on Inmarsat's satellite network) NSSLGlobal was able to deliver double the normal HDR bandwidth for this transmission. This is the first time this has been possible using BGAN terminals, (which are valued in the industry for small size and extreme portability, fitting easily into a rucksack or carry case). In terms of allowing a higher-quality broadcast, this extra bandwidth not only allows for the transmission of sharper images, but can also accommodate the higher data throughput of highly dynamic images such as moving backgrounds or extremely 'active' scenes. As a result, for the first time, rather than being restricted to static camera setups, satellite-broadcast camera crews can be in-motion, provided they have a suitable wired or wireless link to the BGAN terminal.





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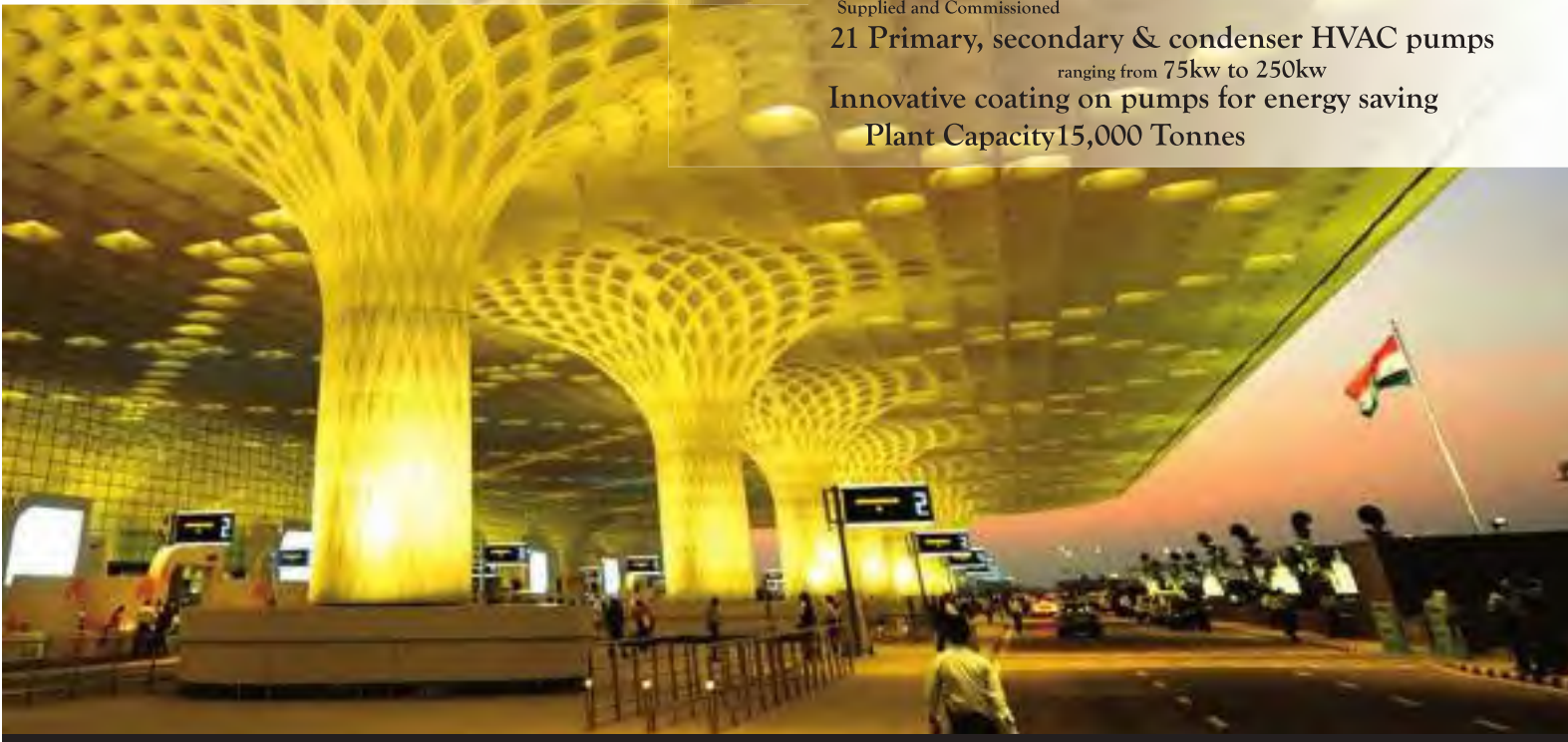
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# Agenda / South

## Inaugural INDUTEC Conference and Workshops 2015: What's New in Manufacturing?

More than 40 professional bodies, institutes and associations have provided input and support to the two-day INDUTEC show to be presented alongside this year's SA Industry and Technology Fair (INDUTEC).

The INDUTEC expo takes place from 20-22 May 2015 at the Gallagher Convention Centre, Midrand. The conference aims to overcome challenges and provide opportunities in the manufacturing sector. The event is expected to provide practical solutions, create dialogue, offer expert advice and devise strategies.

"This inaugural INDUTEC conference features many industry experts as its key speakers, and the two-day format provides a unique structure for interest groups to focus on specific topics, and debate policies that affect the broader South African industrial landscape," stated Keith Burton, managing director of the event organiser, African Agenda.

Topics to be discussed will include industrial and manufacturing competitiveness, political risk and governance, international competition,



INDUTEC will take place on 20-22 May 2015 at the Gallagher Convention Centre, Midrand, Johannesburg, South Africa

regionalism and localism, financing, infrastructural limitations, transformation, regulatory issues and sustainability.

Another theme that will be explored is 'Funding for green technology initiatives: the Manufacturing Competitiveness Enhancement Programme (MCEP)'.

MCEP is one of the Industrial Policy Action Plan programmes rolled out by the DTI in 2012, which provides increased support for manufacturers to enhance production facilities that will sustain employment and improve profits short- and medium-term.

South Africa's manufacturing prospects, challenges, trends and technologies will also be discussed by Coenraad Bezuidenhout, CEO of Manufacturing Circle.

## World Bank helps Mozambique improve access to all-season roads

A third additional financing package amounting to US\$73.6mn from the World Bank is set to support the implementation of the second phase of the Mozambican government's roads and bridges management and maintenance programme.

Due to its geography, Mozambique faces continuous and increasing vulnerability to severe weather events and floods that cause widespread losses and damage to infrastructure. This additional financing credit to the programme fills a financing gap for flood-related road rehabilitation works in southern Gaza Province following severe flooding in the lower Limpopo River basin in 2013.

"Damages inflicted by recurrent floods to the road network isolate many rural communities, preventing access to basic services, markets and transport," said Mark Lundell, World Bank country director for Mozambique, Madagascar, Mauritius, Seychelles, and Comoros. "We are pleased to support the Government of Mozambique in its efforts to improve access of the population to all-season roads through greater maintenance, rehabilitation and upgrading of the classified road network."

The majority of Gaza Province's road network is located in the Limpopo River basin and is prone to inland flooding. Over 70 per cent of the provincial road network – about 2,200km of roads – sustained damage in the 2013 floods.

The government of Mozambique estimated the required road network rehabilitation would cost approximately US\$183mn.

To mitigate the vulnerability of those affected by the floods, in December of 2013, the World Bank provided additional financing of US\$70.15mn to the programme for road rehabilitation and enhanced flood resilience.

## ION expands West African 2D data library with acquisition of NamibiaSPAN

Oil and gas technology provider ION Geophysical Corporation has confirmed completion of the seismic acquisition stage of the company's NamibiaSPAN programme, which extends the full length of Namibia's offshore continental margin. The acquisition was conducted in cooperation with BGP (China National Petroleum Corporation).

With an estimated 100bn barrels of oil remaining to be discovered and produced in Africa's offshore waters, NamibiaSPAN plays a critical role in establishing a contiguous dataset for the full West Africa margin extending from Mossel Bay to the Bight of Benin. NamibiaSPAN comprises over 10,000 km of two-dimensional (2D) multi-client data and represents the newest addition to ION's BasinSPAN library, which encompasses approximately 500,000 km of 2D basin-scale data in exploration and production (E&P) hotspots around the world including NigeriaSPAN, EquatorSPAN and CongoSPAN in West Africa.





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# Agenda / West

## Favourable trade terms to help African countries

The issue of enhancing trade is key to helping African countries become emerging economies, African Development Bank's acting chief economist and vice-president said during the recent International Conference on the Emergence of Africa, held in Abidjan, Côte d'Ivoire.

"Creating favourable terms for trade and enhancing trade relations with other countries should be a critical agenda for an emerging Africa," Steve Kayizzi-Mugerwa observed. Co-organised by the United Nations Development Programme and the Government of Côte d'Ivoire, in partnership with the AfDB and the World Bank, the conference highlighted the need to negotiate favourable trade concessions to allow for new opportunities for African countries to experience economic growth. The meeting concluded with the adoption of the Abidjan Declaration, which emphasises the impact of Africa's trade on the global market. The Declaration stated, "Countries aspiring to become emerging markets should accelerate regional integration through the creation of regional blocks that could eventually lead to the improvement of intra-regional trade and efficient access to global markets."

Delegates agreed on the need for trade and economic growth with participation of vulnerable groups.

The Declaration also stated, "The inclusion of the most vulnerable populations into the financial system, and in particular women and their access to credit should be promoted so as to increase their share of participation in the economy."

African Development Bank statistics show an increase in Africa's economic growth to 5.5 per cent in 2014. The target for 2015 is seven per cent. However, the majority of Africa's population does not feel the impact of this growth. The continent's energy problem also came into focus during the meeting.

Makhtar Diop, World Bank vice-president for Africa, challenged governments to prioritise measures to address the energy crisis, as it is a key element in attracting investment, which is necessary for economic growth. He said, "All emerging countries have to solve the energy crisis. We have to be on par with other nations, ensuring we produce enough energy for Africa at affordable rates."

High energy prices have raised the cost of doing business in Africa, with investors opting to invest in other lands, he added.

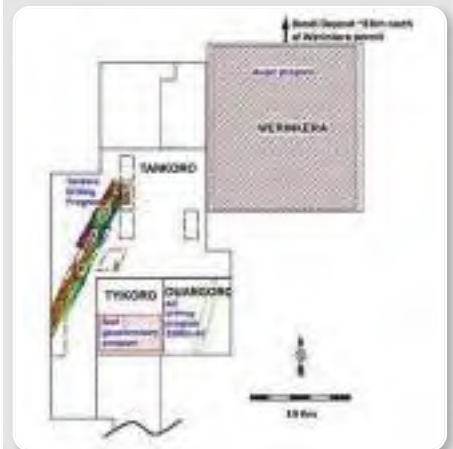
## IFC, BICEC act on agribusiness in Cameroon

World Bank Group member IFC will provide a FCFA2.5bn (US\$4.1mn) risk-sharing facility to Banque Internationale du Cameroun pour l'Épargne et le Crédit (BICEC), to support its lending activities to agricultural cooperatives active in the productions of cassava, maize and sorghum. Currently, 80 per cent of cassava, maize and sorghum, bought by Cameroon agribusiness companies is imported, even though 75 per cent of Cameroon farms grow these crops. The project will share the risk of lending to local cooperative producers selected under the World Bank's Agriculture Investment and Market Development (PIDMA) project, which works to support the transformation of low productivity, subsistence-oriented cassava, maize and sorghum producers into commercially-oriented and competitive value chains. Saran Kebet-Koulibaly, IFC regional director for West and Central Africa, said, "BICEC is an important partner for IFC to reach and support producers of basic foods in Cameroon."

## Sarama Resources completes drilling at South Houndé Project in Burkina Faso

Following the November 2014 earn-in agreement between Acacia Mining and Sarama Resources with respect to Sarama's South Houndé Project in south west Burkina Faso, Sarama has commenced a multi-faceted exploration programme with a budget funded by Acacia of US\$3.5mn for the first year, which includes drilling as well as various geochemical and geophysical surveys.

Results received to date are encouraging and continue to show potential to increase oxide mineral resources and further the understanding of high-grade zones encountered at the MM and MC Prospects. The results from the drill programmes are



Sarama has rolled out a multi-faceted exploration programme

currently being compiled and will be used to plan the next steps of the exploration programme. The programme will continue throughout 2015 and, subject to results, nominally includes 15,000 metres of AC drilling, 6,000 metres of RC drilling, 5,500 metres of diamond drilling, 12,000 metres of auger drilling, a 9,200 line-km airborne geophysical survey and various geochemical, regolith and IP surveys.

The initial diamond drilling programme is focused on the further delineation of high-grade shoot controls at the MM and MC Prospects where previous drilling has demonstrated continuity to a depth of at least 280 metres.



SERIES 2015



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# Events / 2015

## May

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### Aviation Africa

Dubai, UAE

[www.aviationafrica.aero](http://www.aviationafrica.aero)

11-15

### African Construction Week

Johannesburg, South Africa

[www.hypenica.com](http://www.hypenica.com)

12-13

### Africa Financial Services Investment Conference

Brighton, UK

[www.afsic.net](http://www.afsic.net)

12-14

### African Utility Week

Cape Town, South Africa

[www.african-utility-week.com](http://www.african-utility-week.com)

12-14

### A-OSH

Johannesburg, South Africa

[www.securex.co.za](http://www.securex.co.za)

12-14

### Securex

Johannesburg, South Africa

[www.securex.co.za](http://www.securex.co.za)

13-14

### Banking & Mobile Money Uganda

Kampala, Uganda

[aitecafrica.com](http://aitecafrica.com)

19-20

### Mozambuild

Maputo, Mozambique

[www.mozambuild.com](http://www.mozambuild.com)

19-21

### Mobile Money & Digital Payments

Johannesburg, South Africa

[www.mobile-money-africa.com](http://www.mobile-money-africa.com)

20-22

### Indutec

Johannesburg, South Africa

[www.exhibitionsafrica.com](http://www.exhibitionsafrica.com)

20-22

### Pumps, Valves and Pipes Africa

Johannesburg, South Africa

[www.exhibitionsafrica.com](http://www.exhibitionsafrica.com)

21-23

### Ingetrex

Dar Es Salaam, Tanzania

[www.ingetrex Tanzania.com](http://www.ingetrex Tanzania.com)

25-26

### Satcom Africa

Johannesburg, South Africa

[www.terrapinn.com](http://www.terrapinn.com)

25-26

### World Rural Telecoms Congress

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## Wacker's high-tech construction products on show in SA

Not to be missed at the Coatings for Africa event in Johannesburg's Sandton Convention Centre (11-13 May; [www.coatingsforafrica.org.za](http://www.coatingsforafrica.org.za)) will be the space occupied by Wacker Chemicals Middle East/Africa. This will be followed by an instructional seminar on the different technologies offered, as summarised here, attended by the directors of the relevant business divisions.

Wacker works locally with IMCD SA and operates technical application centres in the same city. The parent company is a globally active chemical group headquartered in Germany, founded more than one hundred years ago and now operating 25 individual production sites, including in China and the USA. These specialise in the supply of more than 3,000 high-tech registered-name products used in international high-growth sectors such as construction. Key technologies on show this month in SA

include SILRES BS silicon resins used in high-quality emulsion paints, and VINNAPAS binders for both coatings and other construction applications such as Wacker's ETICS systems (external thermal insulation composites).

Building products based on hydrophobic (water-repellent) silicone resins/emulsions offer a high level of protection for buildings for many years, the resins themselves forming an extremely stable and durable three-dimensional network on mineral surfaces and within mineral-based coatings. This repels moisture but at the same time allows the building to "breathe", being permeable to water vapour within the structure itself and thereby preventing the damage, decay and disfigurement widely associated with moisture penetration.

The company's VINNAPAS range of versatile copolymer dispersion products are also used as binders in the production of specialised paints that have a low content of unwanted

volatile organic compounds and also offer high scrub and blocking resistance. These copolymers are applied in order to enhance the performance of adhesives used between insulation panels and their underlying substrates, optimising the flexibility and impact resistance of the resulting façade and making it moisture repellent at the same time.

Wacker's ETICS composites systems are designed to be used on building facades in order to make them more energy efficient in both hot and cold conditions. And finally the company's special SILRES BS emulsion paints can be applied in order to provide the building system with both the ability to repel water and that health-enhancing breathability.

The Dubai-based subsidiary of Wacker Chemie AG, which is focusing increasingly on high-growth African markets, also took part in the Cementrade Summit held in Addis Ababa last month.



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# Bulletin / Communications

## South African minister lays out five-year communications plan

South African communications minister Faith Muthambi has said that the next five years will be about creating the right conditions for an efficient communications environment in the country, with her department planning “specific interventions” in improving government communications, carrying out a broadcasting policy review, and supporting community media and media transformation; after tabling a five-year strategic plan, the government minister remarked, “Our work for the next five years is guided by the need to lay a strong foundation to create an effective and efficient communications environment in the country.”

## Ethiopian Airlines launches mobile payment service

**Ethiopian Airlines** has announced the launch of mobile ticketing service for its flights, which will allow customers in Ethiopia to book tickets, pay and receive payment confirmation with passenger record locator, via a single connection; Ethiopian Airlines CEO Tewolde Gebremariam said, “In November 2014, we started Mobile SMS information system with access to real-time and personalised information regarding flight information



Ethiopian Airlines’ customers will now be able to book tickets and receive payment confirmation via their mobile phones (Photo: Arpingstone)

and cargo, and we are now taking it a step further by availing the mobile payment option for online purchases in Ethiopia.”

## Africa to see largest e-payment rise, says Visa boss

Africa will see the greatest rise in electronic payments between now and 2016, according to Mohamed Touhami El Ouazzani, **Visa’s** general manager for Morocco and francophone Africa, who made the remark at the **Prepaid Summit Middle East** in Dubai; Africa has already seen a marked rise in electronic payments in recent years, with several notable success stories such as Kenya’s **M-Pesa** mobile payment service, while a recent report by **MasterCard** revealed that more than 80 per cent of Kenyans were using electronic payment products like M-Pesa.

## Gabon to host global ICT regulatory symposium

The **ITU’s 15th Global Symposium for Regulators** takes place in Libreville, Gabon, from 9-11 June 2015, with the event set to bring together a host of guests and speakers from around the world for what its organisers called “the world’s pre-eminent gathering of the global ICT regulatory community”; discussions will centre on a series of key topics, including mobile money, the ‘Internet of Everything’, taxation, investment strategies, network-sharing business models and the impact of regulation upon broadband uptake.

## Smartphone technology ‘revolutionising African farming’

As Internet access has broadened in Africa, technology firms have been able to reach an ever wider audience – a trend which is set to continue, according to consultancy firm **McKinsey & Co**, who also predicted that 360mn smartphones would be in use throughout the continent in the next 10 years; with half of Africa’s one billion people



McKinsey & Co has predicted that 360mn smartphones would be in use in Africa in the next 10 years (Photo: Samsung)

predicted to have Internet access by 2025, McKinsey & Co said that mobile technology had been revolutionising the way African farmers do business, such as the example of Kenyan start-up **M-Farm**, which enables farmers to access information about market prices, lower purchase costs by aggregating orders of farm supplies and sell produce collectively, all via text message.

## Bharti Airtel Africa appoint new MD for Chad



Soussa will spearhead the drive to provide 3G services in the Central African nation (Photo: Steve Jurvetson/Flickr)

**Bharti Airtel Africa** has named Anwar Soussa as the new managing director for **Airtel Chad**; the Indian multinational telecommunications company said Soussa, who joins the firm from **MTN Cyprus** where he served as CEO, will spearhead the drive to provide 3G services in the Central African nation, as well as playing a key role in building the country’s strategic leadership.



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# Bulletin / Finance

## Sukuk programme established in Côte d'Ivoire

Madame Nialé KABA, Côte d'Ivoire's minister to the prime minister in charge of economy and finance, has signed an agreement with the CEO of the **Islamic Corporation for the Development of the Private Sector (ICD)**, Khaled Al Aboodi, to setup a Sukuk programme in an aggregate principal amount of CFA300bn (US\$322.5mn); the programme will be implemented during 2015-2020 for financing developmental projects and will be executed in two equal phases of CFA150bn (US\$161.2mn), with H.E. Madame Nialé KABA commenting, "The Sukuk programme is in line with the objective of



ICD CEO Khaled Al Aboodi with Côte d'Ivoire's minister to the prime minister in charge of economy and finance H.E. Madame Nialé KABA

the Côte d'Ivoire to identifying alternative financing means for developmental project that could help the country achieve an emerging economy status by 2020."

## Angolan wealth fund to provide support to economic sectors

Angola's sovereign wealth fund **Fundo Soberano de Angola (FSDEA)** has allocated US\$1.4bn to five new investment funds focused on the growth of various sectors of the Central African nation's economy; the new investments will be allocated to mining, timber and agriculture, with US\$250mn for each sector, while an amount of US\$400mn will

be spent on healthcare and a fifth mezzanine US\$250mn investment fund to be set up to provide financing to entrepreneurs, who do not have access to traditional debt funding.

## Moody's confirms A3/P2 rating for AFC

The **Africa Finance Corporation (AFC)** has had its international credit rating reaffirmed at A3/P2 (Stable outlook) by **Moody's Investors Service**, who had assigned the corporation its first international credit rating of A3 (long-term)/P2 (short-term) foreign currency debt rating in March 2014; Moody's rationale for confirming this investment grade rating was based on AFC's sound capital adequacy position, owing to good equity buffers and low debt levels, as well as a strong prudential framework that supports a high degree of liquidity.

## Over a billion pledged to Guinea-Bissau

Pledges amounting to more than €1bn (US\$1.08bn) were announced at a recent international conference in support of Guinea-Bissau held in Brussels, Belgium, which the European Union hosted together with the Government of Guinea-Bissau and the UN Development Programme; "I hope that the massive support will encourage the government to pursue its ambitions for reform...for the sake of the people of the country and the stability of the whole region," said Neven Mimica, the European Commissioner for International Cooperation and Development.

## The cost of road safety to South Africa's economy

According to the International Transport Forum's (ITF) latest *Road Safety Annual Report*, South Africa has been ranked the worst country for number of road fatalities

out of 36 countries – an alarming statistic that is not only costing the country valuable lives, but also an estimated economic cost of R307bn (US\$329.4mn) per year; the report also indicated that pedestrians are most at risk as they



South Africa's poor road safety record is reportedly costing the country's economy R307bn (US\$329.4bn) per year (Photo: NJR ZA)

represented more than 35 per cent of all reported fatalities – and that, while the motorised vehicle fleet in South Africa has doubled in the last 20 years, only 30-40 per cent of vehicles on the country's roads are insured.

## IFC invests in Goodlife Pharmacies to improve East African healthcare

**World Bank Group** member IFC has committed to a loan of US\$4.5mn for **Goodlife Pharmacy Ltd.**, to help the company open a chain of 80 pharmacies across Kenya and East Africa; "Goodlife will expand rapidly in East Africa, opening pharmacies at convenient locations in retail centres, petrol stations and near health clinics," remarked Tony McNally, CEO of Goodlife.



# Bulletin / Industry

## Stellar applies for mining licence at Sierra Leone project

Diamond development company **Stellar Diamonds**, which is focused on West Africa, has commenced the application process for a mining licence at its wholly-owned 1.45mn carat Tongo Dyke-1 kimberlite project in eastern Sierra Leone; the company has decided to fast-track Tongo to production following recent positive resource definition work, mining studies and financial modelling undertaken by **Paradigm Project Management (PPM)**.

## Godrej plots six-fold increase in African business

High-level authorities from 15 countries have pledged to collaborate on a plan to wipe out the animal disease known as 'Peste des petits ruminants', which affects both goats and

sheep, by 2030; ministerial delegations, along with more than 300 participants from across the continent, and representatives of regional



The disease, known as 'Peste des petits ruminants', affects goats and sheep (Photo: Retlaw Snellac)

bodies and international organisations, agreed to a plan to control and eradicate the disease drawn up by the FAO and the World

Organisation for Animal Health, which was presented at a meeting in Abidjan recently by the two institutions with the Government of Côte d'Ivoire.

## Godrej plots six-fold increase in African business by 2020

**Godrej Consumer Products Ltd.**, the flagship firm of the Godrej Group, has announced its intentions to increase its African turnover by six times within five years, with the US\$2.25bn **Godrej Group** preparing a blueprint to place itself among the top consumer goods companies on the continent; the plans will see Godrej Consumer aggressively target the acquisition of local brands as it looks to increase its presence in the personal and home care markets, in which it already has a strong footing within its home market of India.

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# African Review/On the Web

A selection of product innovations and recent service developments for African business  
Full information can be found on [www.africanreview.com](http://www.africanreview.com)

## Dar es Salaam port receives US\$596mn for upgrade

The World Bank, the UK Department for International Development (DFID) and TradeMark East Africa have launched a project worth US\$596mn aimed at improving the operational efficiency of Dar es Salaam port in Tanzania.

The Dar es Salaam Maritime Gateway Project will improve the physical capacity of infrastructure and operational efficiency at the port by demolishing sheds 2 and 3 of the port.

In addition, roads leading to the port will be upgraded and gates to introduce a single way traffic flow system will be installed.

Dredging and modernisation of berths to allow handling of bigger vessels will also be executed.

[www.africanreview.com/transport-a-logistics](http://www.africanreview.com/transport-a-logistics)



The Tanzanian port could be a huge income generator for the East African nation  
(Photo: Buonasera)

## SunPower starts construction of South African solar plant



Prieska will be the third solar power plant that SunPower has built in South Africa  
(Photo: David Goehring/Flickr)

SunPower has announced that it has begun building an 86MW solar power plant in South Africa's Northern Cape.

The US-based solar energy company said work on Prieska Solar Power Plant, which is located in South Africa's Northern Cape province, will be completed by 2016, creating around 700 jobs.

Sunpower CEO Tom

Werner said, "We are pleased to grow our presence in South Africa with the development of solar power plants that enable South Africa's government to achieve its renewable goals, and look forward to continuing to serve the region with the opening of our new solar panel manufacturing plant this year."

[www.africanreview.com/energy-a-power](http://www.africanreview.com/energy-a-power)

## Shantui to supply equipment to Zambia National Service

China-based construction company Shantui has signed a deal with Zambia National Service to supply around US\$4mn worth of equipment such as bulldozers and excavators.

The order consists of 320 hp SD32 bulldozers and 20-ton SE210 excavators, said Shantui officials. The company also succeeded in procuring the order after several months of negotiation and bidding with AVIC International.

The machinery, which was shipped from Tianjin Port in China, will be used as part of a programme that will seek to employ young people to develop local infrastructure.

Shantui made a similar order in 2014 to the Kenya National Youth Service, said officials, enhancing its presence in African nations as a key equipment supplier.

[www.africanreview.com/construction-a-mining](http://www.africanreview.com/construction-a-mining)

## Kia Motors Nigeria opens new assembly plant in Lagos

Leading automobile brand Kia Motors Nigeria has unveiled a new assembly plant in Lagos, which is expected to produce 25,000 vehicles every year.

The United Vehicle Assembly Limited (UVAL) plant will help Nigeria's automotive policy towards its target of turning the nation into a leading manufacturing hub, according to UVAL officials.

Nigerian minister for industry, trade and investment, Olusegun Aganga, paid a visit to the plant, stating that it was technologically advanced and had quality assurance control measures in place.

[www.africanreview.com/manufacturing](http://www.africanreview.com/manufacturing)

## 'IIoT the new wave towards smarter industrial performance'

The Industrial Internet of Things (IIoT) can be characterised as vast numbers of connected industrial systems that communicate and coordinate their data analytics and actions to improve industrial performance and make the world a smarter place, according to study by National Instruments.

The study added that the idea of a smarter world where systems with sensors and local processing are connected to share information is taking hold in every single industry. These systems will

be connected on a global scale with users and each other to help users make more informed decisions. Many labels have been given to this overarching idea, but the most ubiquitous is the Internet of Things (IoT). The IoT includes everything from smart homes, mobile fitness devices, and connected toys to the IIoT with smart agriculture, smart cities, smart factories, and the smart grid.

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# Exploiting resources for new economic power

An energy-based investment framework and fresh governmental impetus is increasing economic opportunities in Mozambique

The recent merger of Mozambique's energy and resource ministries raises the real prospect of new opportunities for inward investment. The completion of the merger of the two governmental departments is timely – completing shortly before the 2015 Powering Africa Mozambique event organised by EnergyNet, to take place in Maputo in May.

With the merger, Mozambique has taken another major step towards its 2025 vision for gas and power development. The former deputy finance minister, Pedro Couto is a key figure in executing a plan to promote sustainable partnerships for trade, focusing on the country's balance sheet. However, there is debate on whether there should be more emphasis on regional gas sharing and power sector investment.

With exports of LNG scheduled to start in 2019, Mozambique has high expectations from its gas sector. Furthermore, the prospects for renewable energy look promising, with more than 23TW of possible green projects coming online. However, despite more than US\$3.238bn of investment in power projects in 2014, the transmission bottleneck continues to impact the social and economic development of the region, threatening the bankability of power projects in development. Eskom, African Development Bank, IFC and the Southern African Power Pool are amongst the partners addressing transmission and regional distribution to accelerate the country's industrial development.

The opportunities to be presented to participants at the Powering Africa Mozambique event are clearly significant, and have attracted interest from 150 senior stakeholders including power developers, financiers, representatives of development finance institutions (DFIs) and transmission partners, who continue to be engaged in



EnergyNet is organising the 4th Annual Powering Africa Mozambique in Maputo

ongoing discussions with respect to market developments, investment opportunities and the viability of project finance in line with the country's Vision 2025 objectives.

## Strategies for encouraging investment

Mozambique is expected to experience major economic growth over the next decade, driven primarily by investment in the energy sector – notably coal, gas and oil. The conditions to reap the benefits of Mozambique's rich mineral wealth remain unfulfilled, however. The necessary institutional and legal framework required for mineral resource-based work is still in development. Analyst consensus has it that after 2018, revenues from extractive industries will begin to impact significantly on the nation's budget. Timely construction of required infrastructure is critical, but the biggest challenge facing Mozambique is to create the conditions for economic development. Mozambique's plans to escalate electricity and develop a gas economy are critical instruments with respect to ongoing development. Offshore

gas discoveries along the northern Mozambican coast have revealed reserves that are three times the gas findings in Groningen in the Netherlands in the late 1950s. In the coal-rich province of Tete, the estimated coal reserves are 23.3bn tonnes, roughly three times total global production of coal in 2012. Average economic growth through to 2017 is expected to be at least eight per cent. So, economic growth in Mozambique is driven primarily by ongoing and intended investments in coal and gas, with associated significant funds for projects in land-based logistics and maritime transportation.

The natural resources boom in Mozambique offers many opportunities for economic engagement. Billions of dollars of investment will lead to the completion of liquefied natural gas (LNG) infrastructure in the north of the country, and harbour infrastructure elsewhere. The socio-economic impact in this regard is increasing employment, with several thousand jobs created and an associated expansion in services industries. ■





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# Insurance sector needs intuitive technology

Insurance company focuses on design-led thinking and agile processes to create an intuitive digital interface for its network of intermediaries

**A**frica's economy needs a robust, inclusive and responsible short-term insurance industry where policyholders get real value, said South Africa-based insurance firm Santam.

Majority-owned by Santam Group, Santam's base of customers represents a 22 per cent market share in the local short-term insurance market. Having first opened its doors 96 years ago, Santam's commercial and personal business continues to leverage an intermediary-based model to enhance its reach and scalability. It operates four primary business units — Santam Commercial and Personal, Santam Specialist, MiWay, and Santam Re (encompassing Santam Emerging Markets).

## The challenge

With such a strong emphasis on the network of intermediaries, Santam required a digital solution to facilitate the interactions between intermediaries and the company. The key requirement was for intermediaries to easily, immediately and cost-effectively manage their customers' portfolios - preferably in a self-service manner. The main activities include:

- Managing existing customers' portfolios, such as updating policies and customer details;
- Processing claims on behalf of customers.

Previously, intermediaries were required to either call into Santam's contact centre, or submit claims via fax. Many of these interactions were simple and low-value activities that created an operational slowdown for Santam. In other cases, certain intermediaries were accessing the Santam mainframe directly, which was not a user-friendly solution, created unnecessary complexity, and posed vulnerability problems.



Santam selected Intervate to develop the Extranet portal using SharePoint 2010 to expose a number of enterprise services in an intuitive interface

## The solution

Santam took a broad, enterprise-wide view of its IT environment. It decided to hinge its modernisation programme on three flagship projects — upgrading the mainframe computing system (using guidewire as the policy management platform), integrating Microsoft Dynamics CRM, and building a new web-based Extranet for all intermediary interactions. It selected Intervate to develop the Extranet portal using SharePoint 2010 to expose a number of enterprise services in an intuitive interface available to intermediaries from anywhere in the world. The portal was launched in April 2014 in an event with intermediaries and business partners.

Intervate was selected due to its pedigree in developing great SharePoint user experiences, combined with its skills in responsive design and in developing transactional systems on top of the SharePoint platform.

"At the heart of the solution lies an enterprise service bus (ESB), which pulls together 16 disparate systems, unifying and then surfacing them in a user-friendly and highly secure way via the Extranet. This form of SOA-based implementation means intermediaries are able to access a wide

range of services - from booking new business, to modifying policies, to submitting and tracking claims," noted Santam.

With the Extranet's sophisticated security and auditing capabilities, Santam also ensures full compliance with the stringent regulations governing financial services.

## The results

Creating this Extranet portal has allowed Santam to cater to every type of intermediary - from the most traditional type that prefers telephonic or paper-based engagements, to the most digitally-savvy that enjoys the convenience of the self-service portal.

Santam's programme manager Michael Probyn said that within just the first six months, 84 per cent of its intermediaries had registered on the portal. "The adoption has been fantastic. We spent a lot of time conducting workshops with some of our intermediaries from the very earliest stages of wireframes, all the way through to the final development. It is a very client-centric solution. We placed a major focus on usability and design and in ensuring that we were addressing the intermediaries' needs," he added.

Probyn noted that key features will be extended down to the world of smartphones in the near future, which will further increase the levels of convenience and mobility.

Chantel Louw, medical aid administrator at Innofin, said that the service has transformed the way they do business. "The design is very modern - it's characterised by a much cleaner look and much simpler experience. It is extremely easy to navigate through client portfolios and instantly see everything in a client's portfolio and their historical records."

Innofin is an intermediary that has been involved in the Extranet project since the early pilot phase. ■



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# New revolution in Africa: Supercomputers

In light of an imploding growth in mobile banking, IBM has introduced a supercomputer in Africa to tackle the increasing level of banking fraud in the continent

The z13 is the latest in a 50-year line of z Systems, popularly known as the IBM Mainframe, and is already revolutionising the way banking companies are doing business.

According to Lisa Rautenbach, external relations manager at IBM, the z13 mainframe can handle up to 2.8bn transactions per day, allowing banking sector operators around the world to meet the massive and varied needs of clients. The supercomputer will be particularly useful in African countries such as Kenya, which is a leader in the field of mobile banking.

"The z13 enables enterprises to manage their rate of growth in the use of mobile applications and to provide services to their customers all the time wherever they are. It is designed to meet the speed, security and scalability challenges for IT infrastructure presented by the mobile economy," remarked Rautenbach.

The z13 features the world's fastest microprocessor — two times faster than the most common server processors — as well as 300 per cent more memory, 100 per cent more bandwidth and vector processing analytics to speed up mobile transactions.

The z13 has 500 new patents, including sophisticated encryption technology. It is the first to allow financial services customers to run real-time fraud detection on all transactions, mitigating the huge problem of banking fraud. The Central Bank of Kenya's Banking Fraud Investigation department found that, in 2014, Kenyan banks lost US\$17.7mn through fraudulent transactions, indicating the need for better banking security.

"Transactions are persistent, protected and auditable from end-to-end, adding assurance as mobile transactions grow. This will be able to help prevent fraud as it is occurring, allowing financial institutions to

halt the transaction before the consumer is impacted," Rautenbach noted.

On a global level, banking giants such as Visa have complete confidence in the new system. Visa runs the world's largest global payment network, and is using the z13 to provide payment services to its two billion customers and 36mn merchants. An indication of the power of the mainframe lies in the fact that Visa runs 150mn transactions per day, less than 10 per cent of what the z13 can process.

South Africa's First National Bank, named the World's Most Innovative Bank by BAI-Finacle Global Banking, is also turning to the z Systems to accommodate its rapidly-growing mobile banking sector, which currently accommodates more than 175mn mobile transactions per month across Africa.

"The mainframe allows the scalability to handle a huge influx of new mobile banking transactions, and the security to build trust and financial health for millions of new customers who have never had banking services before. The result is that customers using the mobile channel enjoy convenience and speed, freeing up in-branch tellers to focus on value-added services and building the FNB brand," Rautenbach added.

Tinashe Ruzane, head of business development for Awethu Project, said that the continuing development of mobile technology is one of the best ways for Africa to compete with the developed world. "It has the ability to cut across everything in our lives, which is what makes it so powerful in an African context. It's the one way for Africa to springboard into a space where it can think about competing with the developed world."

As far as the supercomputer movement goes, the z Series has found applications not



IBM is partnering with universities to develop the supercomputer movement in the continent (Photo: IBM)





IBM's z13 mainframe will be particularly useful for Africa's burgeoning mobile banking sector (Photo: IBM)

only in financial services, but also in various industries across the continent, ranging from energy and utilities to government.

According to Rautenbach, the supercomputer development is essential to growth in Africa. In February 2014, IBM launched Project Lucy, a US\$100mn drive to introduce some of the world's most advanced cognitive computing systems to the continent. The project includes the introduction of Watson — said to be the most intelligent supercomputer on earth — and focuses on how big data analytics and cognitive computing can transform economies and societies in Africa. Working with various research partners including universities, development agencies, start-ups and big business, it is anticipated that the ten year project could go a long way to solving Africa's most pressing challenges.

"Watson's cognitive capabilities hold enormous potential in Africa — helping it to achieve in the next two decades what today's developed markets have achieved over two centuries," said Rautenbach.

IBM's researchers are also contributing to the Square Kilometer Array radio telescope project in South Africa, one of the most ambitious scientific efforts ever launched, to collect and analyse unprecedented amounts of data from deep space, stemming all the way back to the origins of the universe.

"The ultimate goal is to make Africa the cognitive continent of the world and to revolutionise the interaction between humans and computers," added Rautenbach. "In order to do that and to best understand the human condition we need to go back to the beginning of the human race — we need to go back in order to move forward." ■

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# Banking on mobile

Millions of people across Africa still remain without communications or a means to conduct financial transactions, often due to their remoteness. But both banking and mobile communications services are reaching out to these people, and new technology 'enablers' are changing lives. Tim Guest reports.

A person in the middle of nowhere, without a bank account, without a means of communications, has very limited means of using any money earned and doing financial transactions.

But now, there is a new way for a person to become financially active, and it's all down to the spread of mobile communications, reaching out from urban and semi-urban regions into more rural and remote areas. Communities in isolated regions previously remained unconnected as mobile operators have avoided delivering mobile services because the costs associated with rolling out traditional mobile infrastructure were prohibitive. Hence, millions have been left out of the mobile communications boom.

That has all been changing in recent years as new mobile technologies and breakthroughs have shown mobile service providers the way to roll out new kinds of infrastructure, often involving a satellite communications segment, and incorporating 'intelligent' technology that minimises such things as power consumption and, in the end, making the case for delivering remote rural community communications viable for the operator.

Advances are not simply in the delivery of voice services but also, now, broadband Internet, which is reaching out to both isolated domestic users and the many remote enterprises like mining, logging, oil and gas communities, which, most certainly, are in need of some form of banking support for the operating companies and the workers. When fibre-optic submarine cables first delivered broadband Internet services to Africa's urban hubs, industry, medicine, education and government benefitted, with economic development boosted as a result. Reaching remote regions with cable-based broadband, however, is not practical, which is where the support of innovative mobile comes in. While having broadband now gives local individuals and communities the chance to market and sell products and services virtually and to use financial services — all of which opens up their horizons beyond the limitations of being isolated — being 'off-grid' without access to reliable electricity means that fixed broadband will simply not happen for them — and they need some form of broadband to support mobile banking services.

## Mobile to the Rescue

Mobile broadband services have now been flourishing in Africa for several years, supporting a growth in the number of mobile banking and payment applications and services that are now available to people in remote regions and elsewhere.

In developed mobile markets, mobile broadband technologies such as 2G, 3G and 4G laptop cards or USB dongles deliver Internet access wirelessly where the mobile network has a powerful enough signal. In remote regions where there are no mobile network signals, specialist



Communities in isolated regions previously remained unconnected as mobile operators have avoided delivering mobile services because the costs associated with rolling out traditional mobile infrastructure were prohibitive. Hence, millions have been left out of the mobile communications boom

'remote community communications' companies have, in recent years, been supporting regional operators in the delivery of local mobile coverage, enabling people like farmers and other tradesmen to have their first financial footprint and conduct banking transactions of various kinds via their mobile phones; and we're not talking smartphones, although these are on the increase, but chiefly feature phones. The mobile phone is the enabler for even the most isolated communities to become financially included.

Pioneer of mobile payments since around 2007, when it launched its M-Pesa mobile banking service, Kenyan mobile operator Safaricom has continued as one of the leading lights in tailoring mobile payment services even for the poorest; it was the first company to lower micro-payment levels to the smallest amount someone could send, taking them from US\$0.6 to a 12 US-cent equivalent in order to support the very lowest paid segments of society. Other carriers have been under pressure to lower their amounts, too, driving a market trend to include as much of the population as possible. At the same time, transaction charges on these small amounts have also been under review, with typical rates currently standing at between five per cent and 30 per cent depending on amount or mobile money operator involved.

## Mobile Payments - An Evolving Picture

According to a report in the *Harvard Business Review* late last year, less than 30 per cent of Africa's population have bank accounts, with many fewer having credit cards of any kind. In Nigeria alone, the number of people estimated as 'non-banking' is more than 70mn, though mobile



➤ micropayments have been changing the landscape for the past four years since the Nigerian Central Bank granted mobile money operating licences to 11 companies.

While the developed world creeps its way stealthily towards a cashless future, many in Africa who have never banked before are actually beginning their financial lives in an almost cashless way from the start in a 'cash-lite' sub-economy underpinned by mobile. And it is not simply M-Pesa in Kenya that is driving this new way forward, but also the likes of mobile operator MTN's 'MTN Money' in South Africa and other MTN mobile markets like Ghana and Uganda, where a mobile phone will even enable a person to withdraw cash from ATMs without a bank card. Africa has now reached a point where it leads the way in the use of financial services via mobile.

Whether it is a desire for financial inclusion or a way of avoiding the pitfalls associated with traditional banking services, such as unseen charges — a mobile wallet/account like M-Pesa or MTN Money will not be subject to charges and hidden deductions. As banks and mobile operators collaborate on such solutions, it means these previously 'excluded' segments of society will also now have a way of accessing and benefitting from loans, credit and other financial products they would previously not have used.

#### A Mobile-Point-of-Sale Adjunct

When it comes to mobile banking driving economic growth, mPOS solutions are also becoming crucial to Africa's economy. mPOS players include JUSP, whose CEO Stefano Calderano believes the big difference in emerging countries is that there is no acquiring infrastructure in place to handle the needs of a wide and diverse range of possible customers. He said that in Nigeria, where there are some 20,000 plus mPOS machines in the whole country there should, really, considering the size of country, be half a million such installations. And while he agreed that there is a strong trend towards the cashless society in all emerging countries, he also pointed out that there is a strong fraud factor in these countries, too. This makes POS infrastructure built on mobile POS much more likely and preferred, with the possibility that many markets in Africa will go straight to chip and PIN. Calderano added that in Kenya, the Central Bank, the government and all the local banks are working together to increase the level of financial inclusion and reduce the cost of handling cash, which they believe can be achieved by increasing the number of cards in circulation and the number of POS terminals able to accept them. These developments go hand-in-hand with the government issuing national identity cards with chip capabilities, together with, in some cases, a prepaid card functionality for benefit disbursements, such as food stamps and healthcare-related contributions. He said that mobile POS terminals can be deployed quickly and connected to mobile telecommunication networks, which are much more reliable than landlines.

**“ According to a report in the *Harvard Business Review* late last year, less than 30 per cent of Africa's population have bank accounts with many fewer having credit cards of any kind**

And while Africa's mPOS footprint is at the very early stages, some international players are already present in the region, although none has made a major inroad into the markets. In Nigeria and Kenya, for instance, there is a very limited number of traditional POS terminals,



With mobile banking driving economic growth in Africa, mPOS is playing a crucial role in the economy

usually limited to large retailers in the major cities' shopping centres, and usually working intermittently due to slow landline connectivity and frequent blackouts. However, the same countries have very reliable mobile networks that are already pushing adoption of mobile money services like M-Pesa.

Calderano sees each of Africa's 54 African countries developing at different paces and sustained by different drivers; as a result, key target markets for mobile POS infrastructure are the ones that are moving faster, such as Nigeria, Kenya and South Africa. And while there may be additional niche markets, these are largely represented by tourist destinations such as Tanzania and Namibia. But when it happens on a widespread basis it will not be long before mobile enabled consumers or chip and PIN carrying users see intuitive benefits of using plastics or mobiles at mPOS terminals, such as the higher levels of security and convenience these solutions will bring. ■

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# Using data to improve production

Operational information represents a potential goldmine for capital-intensive industries, according to IFS

Smarter use of data collected from production and better collaboration between different parts of the enterprise offer asset-intensive South African companies a significant opportunity to reduce production disruptions, increase utilisation of production resources and plan more efficiently.

Thabo Ndlela, director of the IFS Africa Board, maintains that most of the continent's local companies in asset intensive industries such as mining, oil and gas, energy, and utilities could potentially do more to ensure that their systems for production, automation and maintenance work more closely together and in a more integrated manner. This would enable them to achieve better data for decision-making, in turn helping them to increase asset reliability and optimise production.

"It's an opportunity for companies to continuously improve their competitiveness," said Ndlela. "By looking for optimisation opportunities closer to the production process, capital-intensive companies can continually improve their ability to produce the right quantity at lower cost and with sufficiently high quality and delivery precision."

## The market has matured

The key is to get production and maintenance to work together by bridging the gap between production systems and business solutions. According to Ndlela, this will allow executives to use the data that's generated in the plant to make better decisions and — in the long term — create a more efficient organisation that better uses its resources.

He said, "Many of the standards for data exchange today have been around for a decade or more. That means that the technical cost of sharing data between systems is reasonably low today. What's more, the industry is more aware of how profitable it can be to optimise systems and processes in this way."

This creates excellent conditions for improving business processes and getting various parts of an organisation to collaborate better. One practical example, is where IFS is working with ABB Holdings to integrate its business software with the latter's power and automation technologies.

## Huge amounts of real-time data analysed

"In collaboration with ABB, we are striving to give operators on the production line better access to the business applications," said Ndlela, adding that this meant that they can easily transform alerts and events in production to fault reports that move up through the business applications in a seamless flow. "This has been possible for some time, but making it work with the latest user interfaces



Thabo Ndlela, director of IFS Africa Board

increases the usability and power of this feature."

With ABB, IFS is closely creating a flow into the business applications for events captured by the operators. In capital-intensive industries in particular, every per cent or fraction of a per cent in the form of a key performance metric like overall equipment effectiveness (OEE) can potentially result in large increases in revenue.

Refining the effectiveness of an existing complex flow can be an alternative to or complement investing in new equipment. It is mostly a matter of applying technology, organisation and collaboration — in Ndlela's words, "efficient analysis of production data is ultimately a question of honing your competitive edge and increasing profitability". ■



# A holistic approach to enterprise mobility

South African businesses must tailor their mobility strategies to meet wider business needs

To date, many South African businesses have employed a minimalistic approach to enterprise mobility, focusing more on the provision of corporate-owned smart devices and VPN connectivity to corporate resources.

However, according to George Kalebaila, senior research manager for telecommunications and media at IDC South Africa, organisations seeking to succeed in today's ultra-competitive environment must invest in an integrated mobility architecture that directly addresses its business needs.

"Over the medium- to long-term, I expect many businesses in the country to overcome this reticence as they formalise their mobility strategies and employ a more holistic approach. However, this move could still be inhibited by key areas of concern around the need to protect corporate data, manage multiple device types and operating systems, integrate with existing applications, uphold corporate network security, and work within the scope of limited IT budgets," Kalebaila said.

## Enterprising data departments

Such considerations feature prominently at IDC's South Africa CIO Summit 2015, held 12-14 May in Johannesburg, South Africa, with the issue of security coming into particularly sharp focus given the perceived threat posed by the explosion of consumer apps that IT departments have no control over.

"Data security concerns and the difficulty of separating personal and enterprise data on smart devices are among the top priorities for South African enterprises today," he explained.

"Furthermore, the introduction of bring-your-own-device (BYOD) policies inevitably means that IT departments will be tasked with managing a range of different platforms that all require different configurations, thereby adding even more



The event aims to solve key business challenges, in particular, the ability to network and learn from industry peers through essential business conversation

complexity to IT environments that are already far from straightforward."

Kalebaila noted that given the inherent challenges, it was clear that organisations need to take a holistic approach to enabling enterprise mobility, and formulate strategies that not only meet business needs but also closely align with the overarching goals of the organisation. "They also need to formulate security policies that address the challenges posed by enterprise mobility and adopt a phased approach towards its implementation, focusing first on mobilising the processes that are most critical to the organisation and likely to deliver the greatest value. Equally as critical is the need to secure help from a trusted partner capable of successfully navigating the complex mobility ecosystem."

## Vendor strategies

He advises that there are numerous issues that organisations must bear in mind when developing a coherent enterprise mobility strategy and they must begin by assessing their true mobility needs and weighing these

up against the preferences of their employees. Security and device management requirements must also be taken into account, as should the need for any new mobile solutions to integrate seamlessly with existing applications and systems. Vendor selection is the key in this regard, and special attention should be given to those providers that can offer end-to-end support across the entire mobility ecosystem.

"The benefits of rolling out a robust, secure enterprise mobility strategy are clear to see," said Kalebaila.

"Mobility can be a critical source of differentiation, and it most certainly facilitates the agility required to respond quickly to a rapidly changing business environment. It also increases productivity, drives the efficient use of corporate resources, and enhances employee flexibility and quality of life. And on top of all this, it allows for more informed management decisions, drives a reduction in procedural delays, and improves the effectiveness of the sales force by providing real-time access to customer information," he concluded. ■

# Power projects set to soar in Africa

Report highlights increasing investment in renewable energy in Africa and the Middle East

A photo voltaic solar power installation in a rural area of South Africa, utilising the abundance of solar energy in summer

According to Timetric's Construction Intelligence Center (CIC), major economies in the Africa and Middle East are set to invest over US\$717bn in power generation projects in the coming years to increase generating capacity by 379GW.

Report entitled *Project Insight: Power Generation Construction Projects in Middle East and Africa* revealed that South Africa at US\$118bn and Nigeria with US\$95bn come right after Saudi Arabia in terms of project investments, out of the 21 countries analysed.

The developing countries of Africa such as Mozambique, DR Congo and Tanzania have growth in excess of seven per cent GDP and their governments are investing heavily to reduce the frequent power failures which afflict their economies.

Timetric estimated that of the US\$717bn of power generation projects planned or underway in the countries studied, nuclear energy dominates with US\$183bn value of projects headed by Saudi Arabia, followed by gas projects with US\$142bn — led by Nigeria.

Solar power is in third place valued at US\$122bn, again headed by Nigeria, with projects in 17 of the countries studied, showing the commitment of the countries' governments to encourage renewable sources. The countries in the report include Algeria, DR Congo, Egypt, Ethiopia, Ghana, Iran, Iraq, Jordan, Kenya, Kuwait, Morocco, Mozambique, Nigeria, Oman, Qatar, Saudi Arabia, South Africa, Tanzania, Tunisia, UAE and Zimbabwe, which have more than 75 per cent of the projects worth US\$542bn at the pre-construction stage.

Timetric CIC manager Neil Martin said, "The developing countries in Africa are showing high growth in their economies but need to create and maintain reliable power generation infrastructure for their populations and industrialising economies. Solar, hydroelectric and wind schemes figure largely in many African countries' power generation strategies. The Middle East economies are seeking renewable sources of power, whether biomass or solar; however, Saudi Arabia is still the leading user of oil for power generation and like its UAE neighbour is investing in mega nuclear projects."

The largest value project tracked by Timetric CIC is the US\$100bn King Abdullah City for Atomic and Renewable Energy in Saudi Arabia, which is planned for 2016. Other major projects in the region are the US\$30bn Barakah Nuclear Power Plant in the UAE, which is already underway, and the US\$30bn solar power plant in Nigeria, which is at the planning stage.

Meanwhile, renewable development and management company Enel Green Power (EGP) has announced that it is a successful bidder under the fourth round of South Africa's Renewable Energy Independent Power Procurement Programme (REIPPP) securing a 425MW contract with Eskom for the development of three wind power projects.

The three projects will be constructed in the Eastern Cape and Northern Cape provinces where wind resources are plentiful — 142MW Oyster Bay to be completed and online in 2017; 141MW Nxuba to be completed and online in 2017; and 142MW Karusa to come online in 2018.

EGP said the three plants will require a total investment of US\$534.6mn and once in operation will have a generation capacity of 1,560GWh per annum.

Nigeria too is in talks with Russia's Rosatom Corp. to build as many as four nuclear power plants costing around US\$80bn, as Africa's biggest economy seeks to add 1,200MW of capacity by the end of the decade.

"A joint coordination committee is in place and negotiations are ongoing for financing and contracting," Nigeria Atomic Energy Commission chairman and chief executive officer Franklin Erepamo Osaisai said, adding, "We are meticulously implementing our plans."

The West African nation signed an agreement with Rosatom to cooperate on the design, construction, operation and decommissioning of a facility in 2012. A further three nuclear plants are planned, taking total capacity to 4,800MW by 2035, with each facility costing US\$20bn, Osaisai said. The first Nigerian plant will be operational in 2025. ■



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# Solar power 'revolution' taking shape in Africa

The continent is now seeing vast investments from foreign companies who are looking at the opportunity this upcoming industry presents

**B**lessed with the highest concentration of sunlight in the world, more than 85 per cent of the African continent receives more than 2,000 kW hours per sq metre per year of solar energy.

This is equivalent to around 49 per cent of the world's solar energy, which is more than double the rate in Australia where 6.08mn sq km of its territory receives over 2,000 kWh/sq m of solar energy per year. In the Middle East, 2.59mn sq km of land receives more than 2,000 kWh/sq m of solar energy per year.

By contrast, in the whole of EU, just 23,957 sq km of its territory receives more than the requisite 2,000 kWh/sq m of solar energy per year.

The sheer paucity of solar power installations in Africa means that over the decades the continent has failed to take advantage of the potential benefits of an endlessly renewable energy resource.

With a population of 910mn, the whole of sub-Saharan Africa currently consumes only 145 terawatt hours of electricity a year.

A notable exception has been South Africa — the only country in the continent with a photovoltaic power station of more than 50 MW.

But there are tantalising signs that this could be the year when things begin to change and Africa's woeful decades-long history of 'under-electrification' could soon be a thing of the past.

Underpinning this electrical revolution is the declining cost of solar power and the fall in the price of light-emitting diodes (LEDs) that are the source of the new generation of light bulbs. The third crucial revolution is in power storage.

An *Economist* report suggests that the capacity needed to produce a watt of solar power (enough to run a small light) has now come down to US\$1 from US\$4 in 2008. And the simplest solar-powered lamps now cost around US\$8.



In a recent article for the *National Law Review*, Mipe Okunseinde of the law firm Covington & Burling LLP and Adele Faure wrote that an impressive number of solar projects are now coming online across the continent and, crucially, more are in the pipeline

The sales of devices that are approved by the IFC/World Bank's 'Lighting Africa' programme are believed to be nearly doubling annually. In 2009, just one per cent of sub-Saharan Africans without access to electricity used solar lighting. Now, says the International Energy Agency (IEA), it is nearly five per cent. It estimates that by 2030, 500mn people who are currently without electricity will have at least 200 watts per head because of solar power.

The benefits of solar power will augment virtually every aspect of African society, says Charlie Miller of the charity SolarAid. SolarNow, a Ugandan company has developed a US\$200 low-voltage television

set that runs on the direct current (DC) used by solar systems. And a British-designed fridge called Sure Chill that needs only a few hours of power a day to sustain a temperature of 4°C has been unveiled.

In South Africa, a company has even succeeded in launching solar-powered ATMs for rural areas with intermittent mains power.

In a recent article for the *National Law Review*, Mipe Okunseinde of the law firm Covington & Burling LLP and Adele Faure wrote that an impressive number of solar projects are now coming online across the continent and, crucially, more are in the pipeline.

In Rwanda, Gigawatt Global has completed 



➤ the construction of the first utility-scale PV plant in the East Africa region. In West Africa, construction is underway at the Nzema solar plant in Ghana, which, with a projected capacity of 155 MW, will be one of the top ten largest PV plants in the world when completed.

In addition, Nigeria has signed an MoU with a South Korean firm to develop a 1 GW solar PV farm. Last November, Ventures Africa reported that the USA investment consortium Motir Seaspire, had signed an MoU with the Nigerian government to deliver 1,200 MW of solar-powered electricity in the country by 2017.

Other countries, including Côte d'Ivoire and Uganda, have also initiated tenders for solar projects. In Garissa, Kenya, a 50 MW PV power plant is expected to produce approximately 76,473 MWh/year while in Ghana, a 155 MW PV power plant is due for completion this year.

In mid-March, the Public Investment Corp. (PIC), Africa's biggest investment manager, announced that it was investing in two South African solar power plants worth US\$1.8bn. The PIC has taken a 20 per cent stake in each of the two facilities in the Northern Cape Province, which will have a combined 200 MW of energy, the Pretoria-based company said in a statement.

But the greatest promise for solar power lies in the sun drenched lands of the Sahel and in North Africa. Morocco's solar plan is the most ambitious on the continent and includes one of the world's largest solar energy projects that is estimated to cost about US\$9bn.

The project was introduced in November 2009 with the aim of establishing 2,000 MW of solar power by 2020. Five solar power stations are to be constructed. These will combine a number of innovative technologies including concentrated solar production (CSP); Parabolic Trough and PV.

The Moroccan Agency for Solar Energy (MASEN), a public-private venture, has been established to lead the project. The first plant will be commissioned in 2015 and the entire project in 2020. Once completed, the solar project will provide 38 per cent of Morocco's annual electricity generation.

The solar power complex at Ouarzazate is the first to be developed. Construction officially began in 2013 and the 500 MW project is divided among three projects: a 160MW CSP project; a 200 MW parabolic mirror plant, and a 150 MW solar trough plant. The first part of the project is set to produce 160 MW of power by 2015.

In neighbouring Algeria, the first industrial scale solar thermal power project was initiated in 2011 with the inauguration of



Venture capital and private equity firms are providing funding to the off-grid space as well – in the first two months of 2015 alone, they invested nearly US\$35mn in off-grid solar tech companies, compared to US\$64mn throughout 2014

the Hassi R'Mel integrated solar combined cycle power station. This Hybrid power plant combines a 25 MW concentrating solar power array in conjunction with a 130 MW combined cycle gas turbine plant. Algeria has also launched a national programme to develop renewable energy based on PV and CSP as well as wind power. The programme consists of installing up to 12 GW of power generating capacity from renewable sources to meet the domestic electricity demand by 2030.

So what are the outstanding obstacles that prevent Africa from realising its solar potential? These boil down to a lack of grid connectivity and infrastructure and the slow pace of makers of mass-market appliances to recalibrate their products away from mains electricity and towards the low-voltage direct current (DC) produced by renewable energy sources and batteries.

With regards to grid connectivity, Okunseinde estimates that two-thirds of the region's population are not connected to the grid. This means that off-grid

solutions are as important as the utility-scale, grid-connected projects.

In February, the IFC invested US\$4.5mn in Off Grid Electric. This is a micro-solar leasing firm that circumvents the problem of high up-front installation costs of solar PV by allowing rural customers to pay incrementally for the installation over time.

Other companies like M-KOPA Solar, Greenlight Planet, Azuri Technologies, Fenix International and BBOXX, are pioneering financing mechanisms for off-grid solar, such as 'pay-as-you-go' approaches and mobile payment platforms.

Venture capital and private equity firms are also paying increasing attention and providing funding to the off-grid space as well. In the first two months of 2015 alone they have invested approximately US\$35mn in off-grid solar tech companies, compared to the US\$64mn invested in the whole of 2014, said Okunseinde.

But in the technology realm, industry has been slow to take advantage of the new opportunities presented by solar power. The industry 'holy grail' for Africa is said to be a cheap, efficient and reliable DC fan. Low income consumers will also need to be persuaded that their purchases will be robust.

When all is said and done though, the benefits of providing mass electrification through solar power far outweigh the costs. As Onyedimachukwu of Ventures Africa pointed out, if the US\$23.7mn cost to Rwanda for the launch this February of its 8.5 MW solar field was scaled up, then the US\$16bn spent by the Nigerian government under its former president Olusegun Obasanjo, would have brought Nigeria up to 6,000 MW of electricity — more than double the country's current output. ■

— Nnamdi Anyadike

**“Underpinning this electrical revolution in the continent is the collapsing cost of solar power and the fall in the price of light-emitting diodes (LEDs) that are the source of the new generation of light bulbs**

# Light at the end of the tunnel

South Africa's energy crisis could be managed better with investment in CSP technology



The project will boast a 50 MWe generating capacity with nine hours of thermal storage once it is fully commissioned by the end of 2015

With the looming threat of load shedding becoming a regular occurrence in South Africa as a result of a shortfall in coal-generated power supply, local investors are turning to more sustainable alternatives such as concentrated solar plant (CSP) technology.

Industrial gases market leader Afrox has been awarded a long-term contract to supply high-purity nitrogen and liquid petroleum gas (LPG) to the US\$565mn Bokpoort CSP Project, located approximately 125 km southeast of Upington. The project will boast a 50 MWe generating capacity with nine hours of thermal storage once it is fully commissioned by the end of 2015.

Afrox business manager for bulk ASU gases Carte Lubbe recently said that the company started supplying Bokpoort CSP with a fully customised turnkey solution unique to the

local market. He said, "LPG will be used by the CSP during the start-up phase for melting of salts for the Thermal Energy Storage system, whereby the transfer medium is heated to the point that it transforms from a solid state into a molten state."

#### Maintaining a modular supply

The substantial amount of LPG is, however, only required during the heating phase of the project. As a result, Afrox has designed an innovative modular supply system that will be installed and can be dismantled and removed from site within days, thereby ensuring minimal project disruption.

Lubbe noted, "Following the heating period, the entire LPG supply plant will be removed from site. Similar projects in the past have made use of fixed installations that become redundant after the start-up phase

and take up unnecessary space, while costing a fortune to maintain. Upon service completion, our unique modular plant can be removed by a fleet of dedicated and specialised vehicles in under a week – an unrivalled turnaround time."

"Our teams were on site in mid-March at Bokpoort to install the temporary LPG storage facility and to oversee the first LPG being delivered."

Lubbe believes that this project has strengthened Afrox's position as the leading LPG supplier in South Africa. He noted, "This is evidence that Afrox has the capability to provide comprehensive end-to-end energy solutions on a small residential scale, right up to multi-million dollar projects such as this."

Following the heating of the molten salts, a blanketing system is required in order to minimise the risks due to flammable



products, as well as minimising the emissions to the atmosphere and to avoid the deterioration of process fluids. For this reason, the plant will include a nitrogen network that will provide an inert atmosphere to the salt storage tanks, the expansion tanks and the high temperature fluid boiler.

#### New supply to meet specific needs

The company has been working together with Bokpoort CSP to develop a nitrogen supply system to meet its specific needs. Lubbe reported, "As a result of the critical need for nitrogen, special care was taken to ensure that all aspects of demand and supply had been considered. The nitrogen supply system comprises an on-site nitrogen production system, backed up by a high pressure liquid nitrogen storage and supply system."

The on-site nitrogen generating facility is supplied by Afrox's parent, the Linde Group Engineering division, while the cryogenic storage facility and custom designed nitrogen reticulation system is supplied by Afrox. A long-term nitrogen supply agreement between Afrox and Bokpoort CSP has been concluded, ensuring an



A long-term nitrogen supply agreement between Afrox and Bokpoort CSP has been signed, ensuring an uninterrupted and reliable supply of nitrogen to the project

uninterrupted and reliable nitrogen supply to the project.

Due to the location of Bokpoort CSP, Afrox said that it is able to supply the back-up liquid nitrogen via road from several of its regional operations across South Africa, thus providing even more security in supply.

In addition to using LPG and nitrogen

supplied by Afrox, the Bokpoort CSP also made use of the company's extended product range of welding gases, hard goods and consumables during the construction stages. Lubbe said, "Arox has provided a comprehensive and holistic solution to Bokpoort CSP, which will lead to a long-term and mutually-beneficial partnership." ■

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# South Africa goes solar

The debate over how nuclear, fossil fuels and renewable technologies can address South Africa's energy issues

The sun will be largest source of power by 2050 — ahead of fossil fuels, wind, hydro and nuclear, according to 'technology road map' reports published by the International Energy Agency (IEA). The reports predict, also, that solar photovoltaic (PV) systems could generate up to 16 per cent of the world's electricity.

The population growth in the years to come will most likely result in a stronger demand for energy and as such, the country's electricity grid will be under huge pressure. It is inevitable that nuclear and fossil fuels risk becoming stranded investments, and it is therefore in South Africa's best interest to decrease reliance on these fuels. The mindsets of South Africans need to change to such an extent that cutting back on such fuels and replacing them with renewable options are not a burden, but rather a prerequisite.

## Push for PV

South Africa has abundant solar resources available and is in an exceptional position to invest in renewable energy solutions such as PV solar energy, as the sun produces around 2,500 hours of sunshine each year in South Africa. For this reason, there needs to be a bigger push for PV solar energy to replace fossil fuels for electricity generation. Large-scale photovoltaic solar power can be quickly and economically developed to increase the supply of electricity to national grids and improve the reliability of power services for households and businesses.

Solar energy is quickly becoming a competitive energy source. A key reason for this is that the cost of PV solar generation is almost entirely up-front in that there is a cost of purchasing and installing the components, but it requires little maintenance, no fuel and operates with predictable output for approximately 25 years. These factors are not easy to predict with other forms of energy generation.

South Africa is showing signs that a renewable energy shift is on an upward trajectory. International investors are showing continued interest in renewable energy investments in the country due to



South Africa's George Airport recently announced that it will be the first national airport to partially run on solar generated power

the progress which South Africa is making, such as the signing off of 47 projects in the first and second rounds of the Renewable Energy Independent Power Producer Procurement Programme (REIPPPP), bringing the total amount of projects approved by the government to 64 since December 2011. Two of these projects, De Aar Solar Power and Droogfontein Solar have attracted investments of over R120bn (US\$9.9bn), much of which can be attributed to direct foreign investment. A further example is that of George airport, which recently announced that it will be the first national airport to partially run on solar generated power.

## The reality of renewable energy

In a recent statement by Greenpeace in response to the IEA's 'technology road map' reports, global energy policy makers were called upon to accept the reality of

renewable energy and adapt the energy market accordingly. This will only be possible if policy frameworks enable investors to obtain finance to invest in renewable energy projects such as PV solar. There, therefore, needs to be continued investment and support from the public and private sector. The World Bank Group's 'Scaling Solar' programme to boost access to modern alternative energy across Africa through a new solar energy scheme is one such example which provides a straightforward package to help countries determine the size and location of projects, and then auction them competitively to developers.

Projects such as these, which replace fossil fuels and nuclear fuels with renewables, will enable South Africa to become more energy sufficient. ■

— Arthur Chien, V-P of Talesun Energy in South Africa



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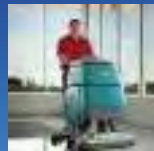
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# Electro mechanical solutions

## The Vortex Hydra turnkey solution for main electro-mechanical equipment

The V.H. Group of companies, with its head office and works located in the historical province of Ferrara, in Northern Italy, near Venice, consists of five international companies having operations located in Italy, United Kingdom, China, Brazil and Australia.

The Italian company Vortex Hydra has extensive experience in the design and manufacture of gate, large valves, and related hydraulic/electrical equipment that in addition to new projects can also include the refurbishment and renewal of hydro-electric power plants.

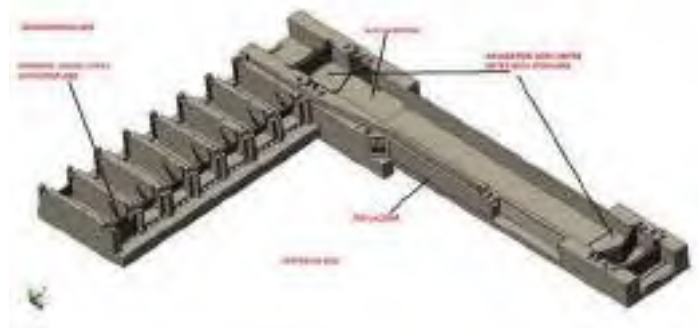
In 2013 Vortex Hydra signed a contract to undertake the design and manufacture of the electro-mechanical equipment required for a cross river regulator in the Middle East. The regulator is constructed to provide three main objectives which are navigation, irrigation and the production of electrical power.

The water management for the regulator is achieved by the construction of the following structures:

Barrage to control upstream water level – equipped with 7no.radial gates (12 x 6.5m) with the facility for both upstream and downstream stop logs to be installed. Stop logs are supplied with their own handling equipment.

Lock to allow navigation along the river – the lock is 200 x 20m in size and is equipped with 2no.miter gates and 4no.culvert gates (2 x 2m) all having the facility for both upstream and downstream stop logs to be installed. Stop logs are supplied with their own handling equipment.

Feed water diversions (2no.) – to allow irrigation on both sides of the river. They are equipped with 2no.fixed wheel gates with the facility for both upstream and downstream stop logs to be installed to control the water feeds used for irrigation.



Vortex Hydra has rolled out a turnkey solution for electro-mechanical equipment

Fish ladder with auxiliary water supply - to connect upstream and downstream sides in the barrage to allow fish passage.

Vortex made all the necessary calculations and drawings to allow construction to commence as required by the general contract specifications edited by the Ministry of Water Resources. With the project approvals finalised in July 2014, Vortex Hydra produced the detailed drawings to enable the manufacture of the equipment in their Italian workshop to commence in association with the programming of the civil works on site.

The equipment manufacturing programme was scheduled as follows:

- I - total embedded parts to be delivered by October 2014
- II - all radial gates to be delivered by December 2014
- III - all required stop logs to be delivered by June 2015
- IV - all miter gates and the remaining equipment for irrigation to be delivered by June 2015
- V - all pertinent actuation devices (for II, III, IV parts) by October 2015
- VI - general controls for the cross regulator by October 2015

The first (I) and second (II) phases above were completed in accordance with the program and the manufacture of the other phases are proceeding to schedule. The equipment was successfully tested in the Italian works, dismantled for deliver and finally assembled on site. All components were designed to enable them to be containerised for shipment. In total it is envisaged that 50no.containers will be required for delivery of stages I, II, III and IV with 10no. or more containers required to ship the remaining devices and controls. The total weight of steel structure is estimated to be in the order of 1,100 tonnes.

In addition to the above Vortex Hydra have also provided the specifications for complete automation, lifting equipment and will also assist the customer in the erection and commissioning stage. ■



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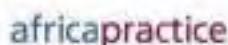
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# Towards a brighter Africa

Each year, Africa's energy leaders assemble at the Sandton Convention Centre in northern Johannesburg for the Africa Energy Indaba, this year in its seventh edition. Stephen Williams reports

**A**frica's struggle for development and industrialisation is tied to a vital precondition – the availability of affordable and reliable energy.

There were a couple of notable aspects to this year's Africa Energy Indaba. For the first time, one day was given over exclusively to a 'Women in Energy Conference'. And the World Energy Council also hosted a Trilemma Ministerial and Energy Leaders dialogue meeting – held in camera but focusing on the World Energy Council's 'Year for Africa' initiative that will culminate at its Executive Assembly in Addis Ababa in October.

As the World Energy Council Secretary-General, Dr Christoph Frei, stated at the Energy Indaba: "Africa is a continent with significant potential for the energy sector. As our World Energy Scenarios have already highlighted, we can expect in the region of US\$1 trillion to be invested in electricity generation alone in sub-Saharan Africa by 2050.

"And with almost 30 per cent of global oil and gas discoveries having been made over the last five years in sub-Saharan Africa, the continent is at the centre of the new energy opportunity.

"The key challenge is to ensure that this new energy opportunity is unleashing the local value chain, and not simply translating into a gold rush."

Fine words, and fine objectives, but the scale of the challenge, perhaps best summed up by the UN's Sustainable Energy for All programme, remains daunting. For in sub-Saharan Africa, fewer than one in three people have access to grid electricity.

According to the International Energy Agency, in its 2014 Africa Energy Outlook report, "In sub-Saharan Africa as a whole, only 290mn out of 915mn people have access to electricity, and the total number without access is rising.

"Efforts to promote electrification are gaining momentum, but are outpaced by population growth. Although investment in new energy supply is on the rise, two out of



Africa Energy Indaba was held in northern Johannesburg, South Africa

every three dollars put into the sub-Saharan energy sector since 2000 have been committed to the development of resources for export."

Three days of intense discussions at the Africa Energy Indaba took the debate forward, the opening day devoted to the issue of gender in the energy sector.

The following day, following a high-level plenary session, the conference proper got under way with pairs of breakaway panels tackling various issues – from nuclear energy for Africa to energy efficiency technologies; oil and gas to renewable energy; finance options to skills development; and regional integration and the energy-water nexus.

The Indaba ended with a final plenary session moderated by the WEC's Secretary General, Christoph Frei.

Variability across the continent is clearly a factor in assessing Africa's energy landscape. But there are some commonalities such as the mismatch between demand and supply.

For although there is almost an embarrassment of riches when it comes to sub-Saharan Africa's power generation potential, with no less than 10TW (terawatts) of capacity, across a number of technologies including gas, coal, hydro, geothermal, biomass, wind and solar ready for

development, demand continues to hugely outstrip supply.

Coal and gas represent relatively low-hanging fruit, and the former is certainly the current path chosen by the Indaba's host country, South Africa.

Indeed, the Indaba took place in February just days after the country's President Jacob Zuma gave his State of the Nation where he accepted the parlous energy situation. He said: "[South Africa] is currently experiencing serious energy constraints, which are an impediment to economic growth and a major inconvenience to everyone in the country."

Yet, in Africa, only Mozambique has greater potential to generate electricity than South Africa. Stripping out the contribution that solar might make, Mozambique has the gas, coal, hydro and wind resources to generate around 190GW of power. South Africa has an estimated 180GW, but the make up is different – Mozambique's primary potential resource is gas while South Africa's is coal.

Coal is the dirtiest of the hydrocarbon energy sources, yet South Africa still relies on the mineral for 70 per cent of its total electricity generation with two giant new coal-fired power stations, at Medupi and Kusile, nearing construction completion.

Medupi is closest to becoming operational, >





Africa Energy Indaba discussed renewable energy sources in Africa

with the power utility Eskom predicting full power from the plant's Unit 6 being reached by the end of May 2015.

The first 800MW unit was synchronised to the national power grid in early March, being tested and optimised to enable its full integration into the national grid. Once the other five units are completed the 4,800MW power plant will provide 12 per cent of Eskom's installed capacity. But, as an alternative to conventional hydrocarbons such as coal, gas or oil, renewable energy is being touted as offering a possible solution to help South African utility Eskom overcome its growing energy crisis.

South Africa's Council of Scientific and Industrial Research (CSIR) in its *Financial Benefits of Renewables in South Africa 2014* report, published in January 2015, confirms, according to South Africa Renewable Energy (Sarec) board member Mike Levington, "the economic value of renewable energy to the South African electricity consumer".

That value has also been recognised by a number of financial institutions, including the country's oldest investment firm and biggest pension fund, the Public Investment Corporation (PIC), that has paid just over R1bn (\$81mn) to buy stakes in two solar power stations in the Northern Cape province.

The state-owned PIC said it has taken 20 per cent stakes in Ilanga and Xina power stations, which are expected to add 200MW of power to the national grid. The projects are worth a total of R22bn (US\$185mn), PIC said.

The CSIR report shows that the net cost of South Africa's renewable energy in 2014 was less than zero, with South Africa's first wind and solar projects last year delivering R800mn (US\$69mn) more in financial benefits for the country than they cost.

The report also demonstrated that the 1,600W of renewable energy installed by the end of 2014 had saved the country R5.3bn (US\$455mn) in fossil fuels such as diesel and coal, and helped to avoid 'load shedding' (South Africa's euphemism for electricity cuts) while costing the country only R4.5bn (US\$385mn) in tariffs.

Stellenbosch University's Professor Wikus van Niekerk says that

"renewable energy, particularly wind and PV, are fuel-savers and can therefore, make a significant contribution in the current constrained period, saving Eskom and the country money".

He adds that rooftop PV projects, put in place by Eskom, need to be addressed to allow even Eskom-subsidised projects to connect to the grid. A reasonable feed-in tariff for rooftop PV – lower than at the Eskom generation cost at coal-fired power stations Medupi and Kusile – could facilitate a number of rooftop PV projects to come online during 2015.

One of the latest developments has been the completion of MAN Truck & Bus SA's (MTBSA) grid-connected R15mn (US\$135mn) solar PV assembly facility rooftop array in Durban, capable of generating over 800,000 kWh of power a year, with any surplus of energy to be fed to the eThekweni metropolitan grid.

Meanwhile, the Sustainable Energy Society of Southern Africa representative Carryn Bateman noted that rooftop solar PV was "perhaps the fastest supply-side solution available".

Nevertheless, solar PV panel arrays are also being developed in utility scale energy developments such as the 75MW Kalkbult plant that covers the equivalent area of 140 soccer pitches. Further afield, in Ghana, the US\$400m, 155MW Nzema project is scheduled for completion this year, and in Rwanda, East Africa's first utility-scale pv solar, a US\$23.7mn project, was completed and linked to Rwanda's national grid.

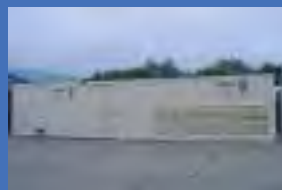
Equally exciting is the rapid development of concentrated solar power projects in South Africa. The first, which is nearing completion, is the 50MW project at Uppington in the Northern Cape. Dubbed the Khi Solar One, and built on a 14ha site, it consists of an array of mirrors that focuses solar energy on a central tower, boiling water to drive turbines. ■



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# Roll-Royce gensets are a powerhouse

Under the MTU and Bergen brands, Rolls-Royce Power Systems showcased diesel and gas gensets at MEE 2015

Middle East Electricity (MEE), held from 2-4 March 2015 in Dubai, provided the backdrop for the first-ever joint presentation by Rolls-Royce for the product portfolio available from MTU Onsite Energy and Bergen Engines. The company showcased high and medium speed diesel and gas gensets in the 24 kWe to 9,400 kWe range. MTU Onsite Energy and Bergen Engines are part of Rolls-Royce Power Systems within the land and sea division of Rolls-Royce.

"We see great market potential in the Near and Middle East for our extensive range of power generation products. That is why we have now strengthened our onsite presence with a new regional subsidiary based in Dubai," explained Matthias Vogel, head of power generation business at Rolls-Royce Power Systems. MTU Middle East provides support for distributors and business partners associated with products from MTU and MTU Onsite Energy and with land-based Bergen Engines products in 21 countries in the Near and Middle East as well as in North Africa.

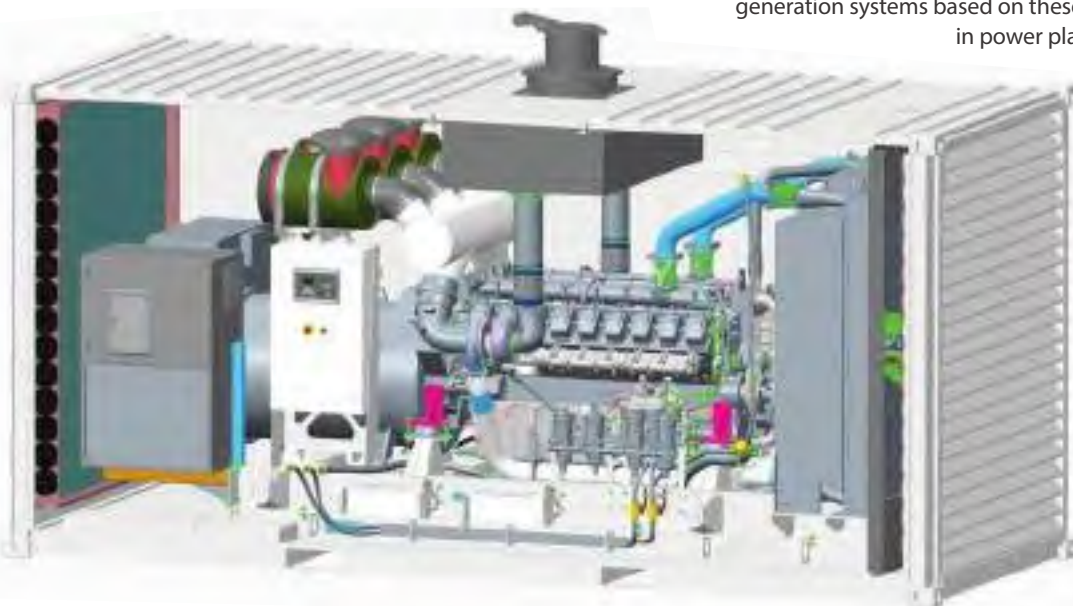
At Middle East Electricity, MTU Onsite Energy presented its range of high-speed diesel gensets up to 3,250 kWe and gas engine systems up to 2,530 kWe. A diesel genset based on the new generation of MTU Series 2000 engines was at the stand. Offering common rail technology and delivering up to 1,120 kWe, the new genset is quieter, more efficient and more compact than units previously available. Its power range is also around 12 per cent greater than that of its predecessor.

**“ We see great market potential in Middle East for our extensive range of power generation products. That is why we have now strengthened our onsite presence with a new regional subsidiary in Dubai”**

For the first time, Open Air Stand OS3, a 20-foot container genset from MTU Onsite Energy, was displayed that is based on the advanced version of the Series 2000. Other exhibits included a model containerised Power Module with a 16V 4000 diesel genset and the model of a gas system based on MTU Series 4000 engines. The systems for decentralised power generation of MTU Onsite Energy are able to cover both continuous and emergency or peak power requirements and, therefore, have a critical role to play in special applications such as airports, hospitals and data centres. They can likewise operate as power generation plants delivering for base and peak load supply applications.

The Rolls-Royce medium-speed power generation solutions are supplied by Bergen Engines. The stand at MEE 2015 included a model of a generator set based on a 20-cylinder B35:40 gas engine. Power generation systems based on these gensets are currently in operation in power plants in Indonesia, Tanzania and

Czech Republic. Diesel and gas gensets from Bergen Engines cover a power range from 3,700 kWe to 9,400 kWe with complete electricity generation systems offering total supply capabilities in excess of 200 MWe. The generator sets are characterised by robust design coupled with leading nominal electrical efficiency ratings of up to 48.5 per cent. Applications include base-load generation for energy providers, grid supply balancing and peak-load supply, cogeneration (CHP) and trigeneration (CHCP) plants, emergency power and mechanical drives for the oil and gas sector. ■



For the first time, Open Air Stand OS3, a 20-foot container genset from MTU Onsite Energy, was displayed that is based on the advanced version of the Series 2000





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# Easy and automatic permit processing

The World Bank Group enables Kenyan county administrations to automate their construction permits

The automated construction permit will reduce the time needed to review applications and ease the burden on county officers

Irfan Hobaya, an architect based in Kenya's Mombasa County knows only too well the burden of submitting an application for a construction permit. To apply, he has to physically go to the county's Planning and Development Department, carrying in hand all the building plans and documents, before following up on the progress of his application using an agent or a middleman.

Hobaya said, "The process is lengthened when documents submitted go missing, and tracing them becomes an ordeal."

However, the World Bank Group is helping to improve this. With the support of a Kenya Investment Climate programme, which supports both national and county governments in the design and deployment of business-enabling solutions aimed at improving their competitiveness, a three-year initiative financed by UK Aid and the Dutch government, Mombasa County launched an electronic construction permits system in early March 2015. The programme team collaborated with the county to design, develop, test, and deploy the online system.

## Faster review with fewer resources

The automated construction permit system will reduce the time needed to review applications and ease the burden on county officers. The previously lengthy and complex process often created a backlog. Now, reviewers can simultaneously assess and comment on applications, reducing the time to issue a permit to between three days and, at most, 20 days to a maximum of three days. The automated system will also enable higher volumes of issued construction permits than the present monthly average of 80, without increasing human resources.

The new electronic system eliminates physical documents and archives all building proposals submitted, working in an entirely paperless manner. It will streamline and make the process of reviewing submissions more transparent as applicants will be able to monitor the status of their application in real time, through a web and SMS-based tracking and notification system. This system also has the potential to ring-fence building permit fees that are a critical revenue stream for the county.

Lastly, the electronic system is expected to increase compliance in the industry through simpler processes, more efficient monitoring and enforcement, and a proper record of inspections, ultimately enhancing public safety.

"The County of Mombasa is experiencing rapid urbanization and construction projects are increasing in number all around the county," said HE Hassan Joho, Governor of Mombasa County. "The launch of the e-construction permit therefore comes at a critical time for the county. Citizens are demanding fast, efficient and transparent public services. The e-construction permit will enable us to not only deliver on our mandates but also significantly improve the county's business environment."

## Permitting growth

For Manuel Moses, who leads IFC's activities in East Africa, "Automating construction permits will lead to an improved investment climate in the counties by easing the burdens on business such as logistics, and unexpected costs through middlemen or liaison officers. This will help businesses to conduct their operations more simply, leading to cost savings and enabling them to grow."

Moses also believes that the electronic system will create an enabling business environment that will attract more investors to Mombasa County and elsewhere in the country. The system is expected to boost construction, a key contributor to economic growth and job creation, and can be replicated not only in other Kenyan counties but also other countries in the region as well.

Currently, 11 e-construction permit projects in Kenya, Rwanda and Lesotho have been completed or are awaiting implementation. Catherine Masinde, head of the World Bank Group's Trade & Competitiveness Global Practice for East & Southern Africa, stressed the need to be sensitive to the interests of businesses in their revenue mobilisation efforts and added that systems such as the e-construction permit can play an important role in consolidating county revenue while paving the way for further automation of similar revenue streams. ■



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# Supporting SA builders' development and training

Murray & Roberts Resources & Industrial and Murray & Roberts Electrical & Control Systems help boost skill levels in the South African construction industry

**M**urray & Roberts Resources & Industrial and Murray & Roberts Electrical & Control Systems, located within Murray & Roberts' Energy & Industrial operating platform, are playing a major role in boosting skill levels in the South African construction industry. Both companies offer a total solutions approach in terms of electrical, instrumentation and mechanical engineering and construction. Khanya Magudulela, human resources manager for Murray & Roberts Resources & Industrial, said, "The capacity and capability of our employees is fundamental to the strengths of our company and the larger role it plays in the South African construction industry."

Both companies are actively involved with the Engineering Council of South Africa (ECSA) in meeting the growth and development targets of the Accelerated and Shared Growth Initiative of South Africa (ASGISA).

"It is our aim to be an employer of choice in the engineering and construction sectors, as this will enable us to deliver a world class service. This is also a direct reflection of our diverse and experienced workforce," said Amelia Phillip, human resources manager for Murray & Roberts Electrical & Control Systems.

Both companies' employee management approach is supported by policies, processes and frameworks that inculcate a culture which drives high performance while remaining compliant with all the necessary legislation and regulations. A key focus here is the companies' proactive environmental management policy to minimise any potentially negative impacts.

## Motivating staff, taking responsibility

In terms of health and safety, STOP.THINK.ACT.24/7 is the Murray & Roberts Group's global brand aimed at educating and motivating employees to take responsibility



STOP.THINK.ACT.24/7 is the Murray & Roberts Group's global brand educating and motivating employees to take responsibility for their own and their colleagues' safety at home and in the work environment

for their own and their colleagues' safety at home and in the work environment. "Safety is a fundamental part of everything we do as a company. From the workplace to the job site, it is the responsibility of every single employee," Phillip said.

In addition, training and development remain a key focus for both companies to ensure that their employees are able to perform their duties effectively and safely, as well as helping them realise their individual potential. In this regard, specific programmes are offered by external service providers such as the Gordon Institute of Business Science (GIBS), with the aim of fostering leadership potential among employees.

"Our Graduate Development Programme equips graduates with the people and management skills necessary to succeed in their careers. We also offer bursaries for students studying towards qualifications in the fields of engineering, quantity surveying and building/construction management," Magudulela said. Phillip added that the programme affords young people the

opportunity to gain experience in their chosen field.

"Skills are vital for sustainable development. However, skills development is not often sufficient in itself," Phillip noted. In addition to the various skills development initiatives underway in both companies, its strategy also embraces enterprise development. "It is through enterprise development that we will ensure sustainability among developing contractors, which will lead to the creation of future employment."

Murray & Roberts Resources & Industrial focuses on engineering and construction aspects of structural, mechanical, plate work and piping solutions for the mining, minerals beneficiation and industrial market sectors. Murray & Roberts Electrical & Control Systems, on the other hand, focuses on the electrical and instrumentation engineering and construction projects in the same market sectors including the addition of the power and oil and gas markets. ■



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# Manufacturers meet the market at Intermat

With approximately 200,000 visitors, Intermat 2015 offered plenty of opportunities to exhibitors to promote products. With around 1,400 exhibitors, including 35 of the top 50 firms in the global construction machinery market, Intermat was the place to be in April to showcase and learn about the latest products for every application. With a new show layout and sector organisation designed to help participants to gain more tangible results in business meetings and better access to potential new export markets, Intermat provided all construction industry professionals with the means to get the most out of business opportunities.

## Key concepts in construction

Intermat revolves around three major concepts: expertise, innovation and networking. It represents a range of geographic markets and product categories, making it a perfect event to capitalise on the growing potential of the EMEA (Europe, Middle East, Africa) territories for which the show has become an essential point of reference in recent years. Among the new features this year, Intermat brought together key players from the concrete industry in a new event covering every stage of the

concrete cycle. The Intermat awards celebrated innovation in the development of new solutions. There were events spotlighting the equipment and materials industry and the firms that use them. Moreover, throughout the six days, Intermat offered a unique schedule of special theme days, presentations, workshops and visits.

Intermat 2015 was organised by SE Interma, representing CISMA (Association of Equipment Manufacturers for Construction, Infrastructure, Steel and Handling Equipment Industries) and SEIMAT (Association of International Civil Engineering, Mining, Construction and Hoisting Equipment industries) in partnership with event organiser Comexposium. The key of the organiser was to pay forward industry prospects with a promising outlook in the construction market for 2015-2020.

## The economic environment

Research by PriceWaterhouseCoopers indicates that worldwide spending on infrastructure will double between now and 2020. This expenditure should grow at between six and seven per cent per year over the next 10 years – with faster growth in sub-Saharan Africa, estimated at over 10 per cent per year.

Each year, Intermat welcomes more and more visitors from geographic regions belonging to the Gulf Cooperation Council (GCC), where economies are booming and construction is very active. This has been especially true since 2011, which saw the launch of Intermat Middle East. In the Middle East and also in North and West Africa, for example, a large number of infrastructure or construction projects are underway or emerging - and the opportunities have been highlighted at Intermat 2015.

In the Middle East, Saudi Arabia has started up several large scale projects in order to adapt the country's infrastructure to meet demographic needs, including a massive six-line underground metro in Riyadh, a 19-line and 990 km extension to the country's railway network, and the Kingdom Tower, which will be the highest skyscraper in the world at 1,000 metres. The emirate of Dubai has won the right to host the World Exposition in 2020, and so has resumed work on several projects that were designed before the economic crisis of 2008/9. However, Dubai has also launched new mega-projects, including the Dubai Water Canal, which will connect Business Bay with the Persian Gulf - and the Falcon City of Wonders, a huge amusement park with replicas of the Seven Wonders of the World. Turkey has started work on a large investment programme, with a third bridge over the Bosphorus, and a third international airport.

In North Africa, Algeria has planned to invest US\$53bn in the development of road infrastructure and engineering structures as part of its five-year plan from 2015 to 2019. This includes the construction of the High Plateaus motorway, the launch of the Grand Museum of Africa and the continued construction of the new city of El Menea. Morocco has kept up the rhythm of its investments to develop its infrastructure, with works on the Tangier-Casablanca high-speed line, the reconversion of part of the Casa Port zone, and the enhancement of the road network. Tunisia is investing millions of dollars each year on projects, including the construction of the financial district of Tunis, which will become the leading financial

The Intermat awards celebrated innovation in the development of new solutions





centre in North Africa for offshore banking institutions, and the construction of the deep sea port of Enfidha to connect Tunisia with the main commercial shipping routes.

In West Africa, Côte d'Ivoire is accelerating the delivery of its development programme, giving priority to transport, power and housing. Approximately 50 km of roads are being built each year. Also, an urban rail service is being built to connect the airport of Abidjan with the north of the country's economic capital. Other plans include the construction of the Soubré hydroelectric dam and new-build social housing. Having become the leading African economy in April 2014, with a GDP of US\$491bn, Nigeria plans to rollout a large number of projects in power, real estate and transport infrastructure. Examples of this are the construction of a housing development on a man-made beach on the Lagos Lagoon, a deep sea mega-port in Badagry, and hydroelectric dams in Mambila and Zungerou. Senegal has also launched major projects designed to equip the country with modern and effective infrastructure, including a tram system in Dakar, a water desalination plant to meet drinking water needs, and a special integrated economic zone near Dakar.

#### Equipment, machinery and processes

Since Intermat was founded, contractors, plant rental firms and operators have been able to observe the know-how, ergonomics, safety and productivity of machines at work. In a 30,000 sqm area, manufacturers of equipment and machinery show off their products: excavators, loaders, mobile crushers, telescopic lifts, screen buckets, and other products.

Intermat pays tribute to invention and product development by distinguishing the most remarkable initiatives with its Innovation Awards and organises two major and unique events to support exhibitors in publicising new products and services. An international judging panel, chaired by FNTP president Bruno Cavagné and comprising 11 industry specialists, representative of building industry equipment and process users, examined the applications submitted by Intermat 2015 exhibitors and elected the winners of the 2015 Intermat Innovation Awards.

The awards are an illustration of the variety of sectors for which equipment is the most essential means of production. In the area of buildings: structural works, finishing works and demolition. In public works: earthmoving, roads and civil engineering. And, serving both of these areas, quarries and prefabrication. The 2015 Intermat Innovation Awards are a reflection of the international

spectrum of the product offering in worksite equipment. The awards are also in line with the leading priorities of businesses today: environmental protection, looking after the health of employees, and staff safety on work sites. The awards now also offer a special focus on the concrete sector.

The diversity of the 2015 Intermat Innovation Award winners is proof of the variety and quality of the number of applications submitted: 78 in all, of which 29 were nominated for awards and 12 ultimately elected as winners. The 2015 Intermat Innovation Awards give recognition to equipment and machinery that is capable of improving firms' productivity.

Staff safety is also a constant concern for firms. Protecting the environment is subject of growing importance for responsible organisations. It is increasingly integrated into the experience of construction industry players. Awards winners this year included Atlog, Liebherr, Merlo, MS, and Wacker Neuson.

**“ Since Intermat was founded, contractors, plant rental firms and operators have been able to observe the know-how, ergonomics, safety and productivity of machines at work**

#### Representing the rental sector

Traditionally, the equipment rental industry has always been at home at Intermat. At each show the event brings together the market ecosystem and its stakeholders: equipment manufacturers, rental companies, fleet managers, engineers, and trade bodies. At the 2012 show, 40 per cent of exhibitors received a visit on their stand by rental companies. This year, a dedicated 'Intermat Rental Day' included a visit to a branch of one of the leading rental companies in France, LOXAM, located close to Intermat and Paris-CDG airport, providing an excellent opportunity to understand how these firms organise their branches, and to discover the operational aspects of rental. There has been, also, a presentation detailing operational factors such as reducing damage and accidents caused by equipment.

#### Dealing with demolition

Intermat also featured an overview of the

regulatory framework with regard to waste traceability and a presentation of Ivestigo software, which simplifies worksite waste traceability. With respect to demolition, CISMA offered insights into the latest developments of standards in rapid attachment systems. And a workshop by Rivard highlighted 'hydro demolition', a method of selectively removing damaged concrete using water at high pressure.

#### Exhibitors at Intermat

The key corporate entities exhibiting power systems at Intermat 2015, included AKSA JeneratörSanayi, Balkrishna Tyres (BKT Tyres), Cummins, Deutz, ESCO SAS, Goodyear Dunlop Tyres, Haladjian, Hatz-Diesel, JCB Power Systems, John Deere Power Systems, Kaeser Compressors, Kohler, Kubota, Magna Tyres Group, MTS, MTU, Pramac, SDMO Industries, TEKSAN JeneratorElektrik, TMS, Trelleborg Wheel Systems, Volvo Penta, Yanmar. Demolition and recycling firms included: Bobcat, Doosan Portable Power, Indeco, and Palfinger. In lifting and handling, the key corporates on stand were: AGS, Haulotte, Hitachi Construction Machinery, Magni Telescopic Handlers, Merlo, SennebogenMaschinenfabrik, Solmec, and Terex Corporation. Construction and maintenance of road infrastructure was represented by: Ammann Group, Benninghoven, Bomag, Fayat, Fendt, Marini, and Wirtgen. Drilling, boring and special foundations for mines and quarries was represented by: Bauer Maschinen, Hany, Integral Intermat Algerie, FinAlgeria/HBXG GroupementProducteurs Chine, McCloskey International, Powerscreen, Soilmec, TalleresNuñez and Terex Finlay.

Earthmoving and civil engineering equipment and services on display included products from: Bell Dredging Pumps, Case Construction Equipment, Doosan, Hyundai Heavy Industries Group, Kobelco Construction Machinery, Komatsu, Kubota, Liebherr, LiuGong, MTB, MTG, MTS, Shantui Construction Machinery, Terex Trucks, Volvo Construction Equipment, Volvo Trucks, Wacker Nueson Group, and Yanmar Construction Equipment.

Topography engineering, new technology and automatic systems were showcased by: CDI Technologies, Trimble, Hitech Software, IMET, Irium Software Group, Mistral Informatique, Moba Mobile Automation, Panasonic, SITECH, Tata Technologies, Topcon, and Trimble. At Intermat 2015, manufacturers of vehicles and transportation for materials included: Bell Equipment, Iveco, MAN Truck & Bus, Mercedes-Benz, Nooteboom Trailers, Scania, and Scheuerle. ■

# Building the construction equipment market

Appraising the key manufacturers and distributors serving Africa's constructors and contractors with the latest, most innovative machines

**M**ore African nations have been capacity building, with internal and external investors mobilising capital for infrastructure projects in local markets. International investors, in particular, have become far more prominent in local capacity building, often channelling funds or managing operations through African subsidiaries. The large majority of jobs created, for example, by InfraCo Africa are for African nationals (at over 95 per cent across that particular company's portfolio).

Establishing or developing the fundamental physical facilities serving a country, city or area in Africa can present huge challenges, in terms of sourcing construction expertise and equipment. Sufficient funds may be in place for a power plant, water treatment facility, transportation, housing, or other project. However, in-country infrastructure development can be hampered due to topology, local skill sets, or a myriad other factors.

Construction equipment manufacturers, therefore, must present as wide a portfolio as possible to achieve sales success across the continent — and their equipment and services must be as innovative as the techniques required to get jobs done in Cape Town, Accra, Cairo or Djibouti.

Operational across Africa, with offices in Côte d'Ivoire, Ghana, Cameroon, Equatorial Guinea, DR Congo, and South Africa, Kanu Equipment is a specialist in the supply of earthmoving and road construction equipment. It is one of the largest dealers for Liebherr and Bell Equipment in West and Central Africa and has distribution centres throughout the continent. Kanu Equipment is a subsidiary of The Torre Group, and is a distributor not only of products manufactured by Bell Equipment and Liebherr, but also those made by Terex Finlay, Wirtgen Group, Tractor & Grader Supplies (TGS), TechKing, and Deutz.

Kanu Equipment's aim is to reduce its customers' cost of doing business in Africa by providing quality construction machines,



The 22 tonne JS220 tracked excavator from JCB

supported by a quality maintenance team with spare part availability wherever they operate. The company will only distribute quality branded products where it has the necessary original equipment manufacturer (OEM) support and back up to respond to its customers' needs.

## Practical equipment, sophisticated designs

Bell Equipment's extensive range of heavy equipment is ideally suited to a wide variety of applications and industries. The company offers loading and hauling machinery solutions to the mining, quarrying, construction, road building, forestry and agricultural industries worldwide. Its robust, reliable haulage machinery is complemented by a range of excavation machinery and other loading tools. Most recently, it showcased its E-series large trucks at Intermat 2015 in Paris, France. Bell Equipment manufactures the largest range of articulated dump trucks (ADTs) in the world, and used Intermat to present a prototype of its B50E ADT, which will

succeed the world's first production 50-tonner, the Bell B50D, and is a vital part of the second phase of the company's E-series development programme, which encompasses Bell Equipment's trucks in the 35, 40, 45 and 50 ton payload classes.

Bell Equipment product marketing manager Tristan du Pisanie said, "Our smaller 20 to 30 ton E-series ADTs formed the first phase of development. They have been well accepted by the market so there has been no need for a change of approach with our larger trucks and we are excited to showcase our B50E prototype at Intermat. Importantly this family of trucks shares a platform that is conceptually the same and is an evolution of our D-series trucks, which have proven themselves as class leaders during their 12 years of operation all over the world."

For more than 60 years, Liebherr's design and technology has been orientated around practical deployment scenarios throughout the world. An uncompromising commitment to quality safeguards the highest level of



benefit to its customers in all product areas. As well as tower cranes and mobile construction cranes, Liebherr offers a broad range of earth moving equipment with hydraulic excavators, wheel loaders, dozers and crawler loaders, telescopic handlers and dumper trucks. For deep foundation engineering projects, the company supplies universal duty-cycle crawler cranes and special piling and drilling rigs. Also, its concreting technology opens up a whole range of solutions for the cost-effective production and optimum transportation of quality concrete. Most recently, Liebherr modified its LR 1750 crawler crane to the upgraded 750-tonne LR 1750/2 model, strengthening the main boom and adjusting the derrick system to increase the crane's load capacity by up to 30 per cent.

Terex Finlay has been manufacturing a comprehensive range of tracked mobile crushing, screening and recycling equipment for over 50 years. Its machines are manufactured to provide efficient production, low operational costs and ease of maintenance. Its tracked mobile jaw crushers are renowned for their capabilities in the reduction and sizing of aggregates for construction materials and also recycling construction waste. Its tracked mobile impact crushers are versatile and capable in processing soft to medium natural granite and limestone and non-abrasive materials, as well as recycling construction demolition waste. Its cone crushers are deal effectively with mid-hard and above mid-hard ores and rocks. The Terex Finlay range of tracked heavy duty screens are versatile and efficient machines that can be operated in a wide range of primary and secondary screening applications. The Finlay 595 heavy duty mobile scalper is a versatile and compact machine that can be used for primary screening and recycling applications on restricted work sites where space is at a premium. The 6 Series range of Finlay tracked inclined screens are versatile, high capacity, robust and durable machines that can be operated in a wide range of screening scenarios. The company's 984 horizontal screen is a high capacity, robust machine - ideal for handling large volumes of materials in quarrying as well as recycling. And its Dual Powered crushers are electrically driven machines, which allow the end-user to run from mains supply with the aim of giving significant savings on energy costs.

The Wirtgen Group companies offer mobile machine solutions for road construction and rehabilitation, as well as for mining and processing minerals. Its Batchmix 1250, which was developed by

Benninghoven, was premièred at Intermat 2015. This new development in the field of mobile batch plants boasts maximum flexibility and mobility combined with reliable technology. The complete plant technology for producing high-quality asphalt is mounted on five chassis. With a mixing capacity of 100t/h, the Batchmix 1250 guarantees quick and easy installation as well as rapid changes of location. The plant is supplied with the required aggregate fractions via four cold feed hoppers with a convenient loading width of 3,600mm. The drying drum is mounted on the same chassis to ensure quick and efficient drying of the aggregate. The plant includes a powerful four-deck screen capable of separating 90t of aggregate per hour into the four compartments of the hot aggregate bin unit. Up to 20t can be stored here in total.

#### Making machines and supplying parts for construction projects

Tractor & Grader Supplies (TGS) is a significant aftermarket supplier of parts for earthmoving machinery in Africa. From its bases in Swaziland, Zambia, Zimbabwe, Namibia, Republic of Congo, Sierra Leone, Ghana, Liberia, Cameroon, Equatorial Guinea and Cote d'Ivoire, TGS is a distributor of Maxiforce engine parts, ITM undercarriage components, GET brand equipment, and parts for Caterpillar-type machinery. Moreover, its Rebuild Centre is ISO 9001:2008 certified and is a fully-equipped refurbishing and complete machine rebuild workshop.

High Power Equipment Africa (HPE) is the sole distributor of Hyundai earthmoving equipment in Southern Africa, and also supplies other brands for constructors. Hyundai's equipment ranges from excavators to wheel loaders and skid steer loaders. McCloskey International crushing and screening equipment is also supplied. There is, too, Soosan Hydraulic Hammers and Drills, which work as complimentary attachments to the Hyundai range of earthmoving equipment. HPE supplies, also, Meccanica Breganzese (MB) jaw-action bucket crushers, which are amongst the most respected and innovative range of products in the earthmoving industry.

The Volvo Group manufactures trucks, buses and construction equipment, as well as drive systems for marine and industrial applications. The company also offers its customers financial services. The company's dealers in Africa include: Auto Sueco, which provides sales, parts and service for Volvo Construction Equipment (Volvo CE) across Angola, Kenya, Tanzania and Uganda;



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► Babcock International Group, an engineering support services organisation, with operational experience in Africa, which is a key supplier to customers in the mining, quarrying, forestry, material handling, road construction and transport industries; Swedish Machinery & Trucks (SMT) Group, which is the official distributor for Volvo Construction Equipment, Volvo Trucks, Volvo Penta and Volvo Bus in 21 countries within central and western Africa; Albarajoub Engineering Company (BEC), which offers sales, parts and services for Volvo Construction Equipment, Volvo Trucks and Volvo Penta, and is a key player in the Sudanese market, in mining, agriculture, oil and gas, road construction, heavy infrastructure, quarrying and aggregates; Equatorial Business Group (EBG), which has been the distributor of Volvo Construction Equipment in Ethiopia for over 15 years; Ghabbour Egypt, which has represented Volvo CE since 1999; Leal Equipment Compagnie (LEC), which represents Volvo Construction Equipment in Mauritius, Madagascar and the Seychelles; Nordic Machinery, a privately-owned Tunisian company; Volvo Maroc, which provides coverage from branches in Casablanca, Agadir and Tangier, maintaining a fleet of service vans operating around the clock in order to provide a prompt repair and maintenance service for all customers; United Group Company, which also represents Volvo Construction Equipment, Volvo Trucks, Volvo Buses and Volvo Penta, and has a strong presence in local markets, especially in the construction and quarry segments; and A Yazbeck & Sons, which is the authorised distributor for Volvo Construction Equipment in Sierra Leone, and also maintains a team of dedicated staff to serve the mining sector.

Dedicated to southern and western Africa, Hitachi Construction Machinery sells and distributes mining, earthmoving, construction, quarrying and forestry equipment in Southern Africa and also in Ghana. It also supplies spare parts and provides product support including servicing, maintenance and repairs. Additionally, Hitachi specialises in the manufacture and refurbishment of excavator buckets, front-end loader buckets, rear dump truck bodies, water tankers, and bottom-dump coal haulers.

#### Divisions and distributors serving construction companies

In South Africa, ELB Equipment (ELB) is one of a few locally-based companies who can act as a single supplier of a broad range of earthmoving, construction, mining and quarrying equipment. The company is a division of ELB Equipment Holdings Group. ELB represents a number of manufacturers



A new generation of Volvo-Advanced Combustion Technology (V-ACT) engines features ultra-high pressure variable fuel injection systems that control combustion temperatures

whose products are designed to meet the strict emission and safety control regulations that apply to the industrialised countries. Since South Africa closely follows global standards, its customers are assured that the products supplied by ELB meet local safety standards, and offer benefits in terms of enhanced ergonomics, improved productivity, conformance to quality standards, and reduced operating cost. A division of Invicta Holdings, also operating from a South African base, Capital Equipment Group (CEG) consists of a number of divisions and companies focusing on the importation and distribution of equipment, with a distribution network of over 152 outlets. CEG supplies equipment from Case, TCM, Doosan, ESPA, Kian Ann Engineering, and High Power Equipment Africa.

CSE distributes Case construction equipment, sourced from all over the world. Criterion is a distributor of TCM forklifts sourced from Japan. The TCM brand is well-known in southern Africa. ESPA is a South African multi-brand distributor, which specialises in the procurement and distribution of high quality aftermarket replacement parts, including ground-engaging tools and undercarriage for earthmoving equipment, and parts for Caterpillar, Komatsu and other earthmoving equipment, parts for diesel engines, and the repair of undercarriage for earthmoving machinery. ESPA serves the aftermarket parts industry through an extensive network of branches and distributors in South Africa, Botswana, Namibia and Swaziland. Kian Ann

Engineering is one of the world's largest independent distributors of heavy machinery parts and diesel engine components. Its products are used for excavators, bulldozers, wheel loaders, motor graders, trucks, trailers, power generation sets and marine engines. The machine brands that the group's products support include: Caterpillar, Komatsu, Cummins, Hitachi, Kobelco, Sumitomo, Mercedes Benz, Volvo, Scania, MAN, BPW, Hyundai, Samsung and Daewoo/Doosan. Kian Ann distributes throughout Africa.

#### Machines from key manufacturers

Doosan equipment - its excavators, wheel loaders and articulated dump trucks - are fuel-efficient, comfortable and easy to maintain. Its crawler excavators combine robustness with a high degree of functionality for African operators. Its wheel loaders offer exceptional performance, comfort, handling, serviceability, and durability. The DA40 and DA30 ADTs are built with quality components from suppliers such as Scania, ZF, NAF, Parker and Rexroth to ensure optimal off-road performance.

The DX300LC-5 excavator from Doosan is a particular example of a piece of equipment that is built for reliability. Boom and arm bushings and ultra-hard wear disks are designed for extended service intervals and steady performance. The permanently sealed and lubricated track links maximize uptime and reduce operating costs. Work naturally inside the cab with controls that are placed where they are needed. ■



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# Cementing a change

Nigerian entrepreneur Alhaji Aliko Dangote is changing the import scenario in the West African nation, by becoming a powerful force in the field of cement production and export

Nigeria, Africa's largest economy, has always battled the image of being an import-driven nation and has relied heavily on sustenance from other countries. However, if recent trends are anything to go by, the country's Dangote Cement Plc is extending investments in other countries as well as exports. The company is renowned for cement production, but is extending its reach into other sectors as well.

The country's import-driven relationship with the world has been going on for decades. While Thailand and India have been supplying rice to Nigeria, Turkey and China have been sending large amounts of cement to the West African nation. Products such as wood, wheat, fish, vegetable oil and automobiles have also been sent to Nigeria over the years.

With the advent of entrepreneur and visionary Aliko Dangote, the economic landscape in Nigeria appears to be changing.

One of the mainstays of the company is cement production, and Nigeria is now exporting cement to other African nations. Recently, Mali, Gambia and other countries in the region were provided a channel of cement exports. Dangote Industries Senegal country head Luk Haelterman, at the opening of the new US\$250mn cement factory, stated that initial volume of cement export was pegged at two million metric tonnes (MT). Senegal is a growing market for the company, with a 14mn strong population, a GDP of four per cent (as of 2013), a cement market of three million metric tonnes per year and a consumption rate of 230 kg.

In Cameroon as well, Dangote Cement hopes to deepen market penetration through its innovative product offering. The country's cement plant, with a 1.5 metric tonnes per annum capacity, is equipped with the most recent facilities that ensure no dust emission. The company's ex-factory price is the cheapest in Cameroon, compared to other products in the market. Dangote Cement's 42.5 grade is cheaper than the 32.5 grade that is sold in the open market.

In South Africa, Dangote formally



Dangote Cement is exporting cement to several countries such as South Africa, Gambia, Mali and Cameroon

increased its stake in Sefhaku Cement Limited from 19.76 per cent to 64 per cent. The transaction, which comprises a US\$65mn investment into Sefhaku Cement by Dangote, is the largest ever foreign direct investment (FDI) by an African company into South Africa. Dangote Cement president Alhaji Aliko Dangote, who is also the new chairman of Sefhaku Cement, commended the transaction as taking place "at a crucial moment in the history of cement demand and supply, and at a crucial moment in terms of Dangote's pan-African ambitions."

According to Dangote, the pace of development at Sefhaku will increase in view of the project completion timeline set in 2012. The Dangote Group will bring its full experience and resources to the project, having completed other largescale cement projects in Nigeria and with similar projects currently underway in Tanzania, Ethiopia, Congo-Brazzaville, Senegal and Zambia.

DR Congo and Dangote Group have stated that the company's cement project in the country was making good progress and would commence production soon.

Dangote Group recently extended its Pan-African cement investment to Congo-Brazzaville in Central Africa, with a US\$350mn investment agreement signed between the group and the Congolese government. The project is expected to help the country significantly reduce the imports of cement and even enable it to become a net exporter of cement while boosting economic growth, development, job creation and income generation.

"It is obvious that African governments alone cannot hope to meet this demand due to the various competing needs in other aspects of the economy. This is why private companies are needed to complement the government's efforts. We are motivated to create an African success story because we believe that entrepreneurship, especially our own home-grown African entrepreneurship, holds the key to the future economic growth of the continent. The fact that Africa offers one of the highest returns on investment (ROI) in the world is an additional incentive for any discerning investor, who can take calculated risks," concluded Dangote. ■





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# Large load, long haul

The loader/haul truck combination is the ideal materials-handling solution for most surface mining operations; these machines are widely used in road construction, for dealing with municipal waste, and in large-scale farming too

Seeking a complementary loader/haul truck combination? To benefit from Africa's mining boom, the key requirement is to get the combined cycle times right. With fuel economy and emissions benefits too, your investment will reap the richest returns, with minimum down or 'waiting' time clocked up by either machine.

Most large equipment manufacturers like Caterpillar, John Deere and Terex, and local distributors such as Mantrac, can help you locate what amounts to a matching pair, offering expert advice based on hard-earned experience here in Africa. Mantrac's associated Unatrac website provides details of equipment supplied to four different gold



A loader combined with a haul truck greatly reduces fuel consumption and emissions

mining operations in Egypt and Ghana.

However, for such assistance to be most helpful, dealers will need detailed information about the material(s) to be handled, site conditions, and various other production requirements.

First, the key component is the wheel loader itself (also known as a front end loader, bucket loader and chargeur sur roues). Various other loaders find uses in surface mining – such as the backhoe and skidsteer – and specific attachments can perform specialist tasks like handling logs. All these applications require top-quality heavy-duty diesel power available at fingertip control, with functions handled electronically, even if



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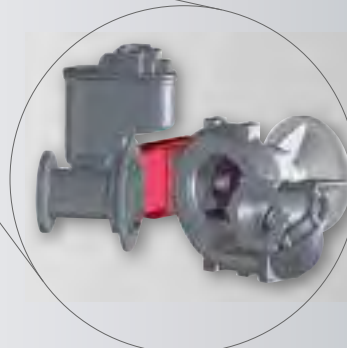


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Well below 10 or more than 20 tonnes in size, most contemporary loaders come equipped with automatic transmission, which reduces operator fatigue massively. Along with highly sensitive 'inching' controls, a cool comfortable cab and sophisticated suspension, this contributes to both shorter and safer production cycles, even in the roughest of terrain. So does today's hydraulically-actuated articulated-frame steering which allows for digging surface ground, attacking a pile and shifting in the tightest of conditions. A limited slip differential may be opted for when selecting a loader as this increases traction in deep wet mud; so does an available choice between two and four-wheel drive, which can increase effective breakout force in the right circumstances if all the power is directed at the right axle.

Most large mining or so-called 'rock' trucks continue to be rigid in construction; that allows the largest of payloads to be shifted. But with articulated dumpers (ADTs), the natural partners for today's wheel loaders and massively popular with construction contractors like road builders these days, six-

wheel drive is usually available for when the ground conditions need it. And all to keep that critical extract-load-shift-dump cycle time down.

For really precise control of the cycle of operations and overall productivity, some of the latest loaders even incorporate an individual payload measurement and recording system. No excuses for lazy operators when this is onboard.

Diesel-based muscle power started it all, of course, but built-in electronics have made most of this better. A factor for surface miners to consider could be the adaptation and adoption of electric drive (long associated with underground operations, and causing a sensation when the first AC electric dozer, the D7E, was launched by Caterpillar less than 10 years ago).

Now the attention is shifting to various hybrid diesel-electric technologies, with the Deere development team launching not one but two hybrid wheel loaders, the 644K and 944K models, in 2013. Other equipment manufacturers are already on board, and more suppliers are expected to join in as high-capacity battery technology improves through the efforts of high-tech operators such as Tesla Motors.

We attend all the big equipment shows,

and *African Review* will keep you up-to-date with the exciting news about the low-emissions fuel-saving power systems that are certain to come. Even tyre wear is reduced this way, the proponents say.

Naturally all this requires parallel advances in technology from the synchronous alternator manufacturers such as Mecc Alte. Some of the latest loading and handling machines are effectively high-capacity generating sets that happen to be self-mobile these days – with a bucket attached at the front-end in the case of the workhorse wheel loader. GPS positioning and robot control are already possible.

Apart from overall (including loaded) weight, the power rating of the prime mover, maximum bucket capacity and available breakout (tearout) force, the key specifications to compare when choosing a modern loader combination include height (defined in various ways such as maximum overall, and bucket hinge pin at full lift); maximum digging depth; overall length; and bucket reach at full lift. That breakout score is really important. Other specifications include the operating and static tipping loads, geometry of the bucket 'carry' position itself, overall clearance circle and the required dump height at the end. ■

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# Heavy duty foray into Africa



An SDLG machine in action

## SDLG's strategy to become the value market leader in the continent

In 2009, following the joint venture with Volvo Construction Equipment, we took on the challenge to launch SDLG in Africa. At the time, it was an unknown brand in that region, with sales in only one or two markets, so we started from scratch.

The SDLG products came out on top when we tested them against other Chinese brands. We know SDLG machines are reliable and have a relatively long life span. A number of quality and reliability tests were done ahead of the start-up in Africa, and regular reviews are conducted for optimising quality on an ongoing basis.

The joint venture meant that SDLG could benefit from the already established Volvo CE dealer network in Africa. All Volvo CE dealers in the African markets were given the opportunity to sell SDLG products with the condition to have a clear, dedicated SDLG sales branch and team in place. SDLG's product management team offers regular training to SDLG dealer personnel, ensuring they are fully trained on SDLG products. Where our dealers in Africa have introduced a dedicated and fully trained SDLG sales team, we've seen a noticeable increase in sales.

Since 2009, we've improved sales and

brand development year on year. Today, SDLG is represented in 26 African countries and is among the top three Chinese brands in Africa in wheel loader sales.

### Chinese brands in Africa

Chinese brands currently dominate the wheel loader market in Africa, driven by many infrastructure and construction projects financed from China, such as property building, road and railway construction and port development. Of all wheel loaders sold in this market, more than 70 per cent are made in China. More than half of this, of which SDLG has a very good share, is sold through dealers.

Although a large number of machines are



still imported by Chinese contractors directly from China for projects in Africa, more of them are appreciating the benefits of local dealer support. We anticipate an increase in Chinese contractors sourcing equipment locally, therefore the sales potential for SDLG dealers is expected to increase.

Chinese equipment is in demand from small companies, often sub-contractors, working on road construction, industrial handling, construction site maintenance and agricultural projects in Africa. Companies such as these require affordable, value products, which don't cost the earth but are reliable and that get the job done.

### SDLG – the chosen Chinese brand

SDLG is doing well in most markets in Africa, enjoying a top three position out of the Chinese brands. Our strategy over the next few years is to continue what we've been doing from the beginning — utilising the strength of our internal structure, and continuing to offer customers outstanding aftermarket support, with the help of our well-respected dealers who are established in their respective markets.

This is where SDLG stands out against the



Chinese competition. In the past, lack of aftersales and customer support was painting a bad reputation for Chinese brands. Our objective is to turn this around, and to prove to customers in Africa that not only do we have good quality value products, but that we promise to support our customers throughout the product lifetime.

It will take some time and some persuasion to sway opinions, as many customers still simply go for the cheapest product, but our belief is that the key to long-term success is offering the right quality products, and the right after sales support.

SDLG now has five dealers in Africa, operating in 26 countries. The dealers are big, financially strong and well-known for excellent aftersales support. Having a strong dealer name behind you is extremely beneficial for a new brand. Coupled with the best aftermarket support among Chinese brands, SDLG has the means to treat customers exactly how they expect and deserve to be treated. SDLG and its dealers are focused on building long-term business relationships with their customers in Africa.

80-90 per cent of products sold by Chinese brands are wheel loaders, and what a lot of people don't know is that SDLG is the number-one wheel loader manufacturer in China. Our target is to establish SDLG as the



Stefan Bach, Africa business manager for SDLG

market leader for Chinese brands in Africa also, within the next three years.

#### What's next for SDLG in Africa?

We have already achieved great success with the launch of rollers and motor graders during 2013 and 2014. These product lines have become an important leg of our strategy and we will further develop our share by launching additional models.

Our next step is to introduce SDLG's new backhoe loader and excavator. We have introduced both products in a few markets already and we are currently preparing launches in additional markets. The launches of each product will be completed during 2015 and early 2016.

Market-wise, Algeria is a key focus for SDLG in 2015. Chinese products have a good acceptance in Algeria due to a ban on imported used equipment. In mid-2014, we appointed SMT as the SDLG dealer for Algeria. SMT is our SDLG dealer partner in a couple of other markets already, so we know we can build on our already good partnership. We are working closely with SMT Algeria, offering support on-the-go to kickstart SDLG's introduction to Algeria – we are confident that we will see significant growth in this market very soon.

Our mid-term target is to become a genuine competitor in the 'upper-value' class brands, such as the Korean and Japanese manufacturers. This will inevitably take some time, as these brands have established themselves in the African market over 15 to 20 years, but there is huge potential for SDLG in this region, and we and our dealer partners are ready to take on this challenge. ■

– Stefan Bach, Africa business manager for

## Bobcat's new skid-steer loader for comfort and efficiency

Machinery manufacturer Bobcat has launched the new generation S450 skid-steer loader, building on the success of the S130 model it is replacing.

The S450 skid-steer loader can be supplied with a comprehensive choice of 48 different product families of approved attachments (with more to come), offering solutions for a very wide range of applications and providing a perfect illustration of the Bobcat Tool Carrier concept, common to all Bobcat compact loaders.

Much like the larger models, the new skid-steer loader offers significantly improved comfort and visibility to allow for greater control and accuracy in tight working spaces. Now, for the first time in a skid-steer loader model in this size class, the S450 loader is supplied with a fully pressurised cab with air-conditioning as an option. Other key features include increased hydraulic performance and efficiency, a new tailgate design, integrated rear bumper and enhanced serviceability.

#### Larger Cab and Improved Operator Comfort

The cab of the machine is based on the concept of larger Bobcat loaders and has been designed to maintain the loader's compact size without compromising operator comfort and control during operation. The internal area of the cab

has been increased by 10 per cent compared to the S130 model, resulting in more space around the operator. Moving the cab side windows to the outside of the cab has contributed to the increase in interior space and has also made them easier to clean. Bobcat's best-in-class cab pressurisation system is based on a one-piece seal that goes around the door, increasing pressurisation to minimise the dirt and dust that might enter the cab. Heating performance has also been increased and the controls are fully illuminated. All-round visibility is increased by 30 per cent, compared to the cab on the S130 model.

#### Increased Hydraulic Performance and Efficiency

Hydraulic performance has been increased with an increase in system pressure and changes to the hydraulic components and hose and tube line routings. These have been designed to allow the use of straight fittings instead of adjustable fittings (45° or 90°). The number of hydraulic connections has also been reduced. These changes improve overall efficiency and also eliminate routing variation as well as reducing potential rubbing and leak points. The new tailgate has been designed with a shorter vertical height and stiffening pockets to provide optimal



Bobcat's new skid-steer loader offers good visibility and comfort, to enable smooth functioning in restricted or small spaces

strength whilst maintaining a slimmer fit. This allows the use of a tailgate protector integrated into the machine's mainframe.

Increased electrical protection is provided by dedicated fuses for individual circuits, which are mounted in an easily accessible box near the battery. Battery access is increased and battery protection from debris and heat is improved with the use of a dedicated cover.

To complete the compact package, serviceability and uptime protection have been improved with features from the larger models. Both the oil cooler and radiator are now a combination unit that provides a cleaner cooling environment less likely to trap debris and aids routine cleaning.

# Heavy duty machines

Whether jaw, gyratory or cone type, crusher machines are essential to the mining and quarrying process in Africa. They make it possible to reduce the payload to a specified consistency for the onwards processing of any hard material

The Canadian company FAB3R\* has supplied us with concise information on the uses of crushers in mining operations generally. The Trois-Rivières, Quebec-based business describes its purpose as to offer technical skills and certified manufacturing expertise to manufacture and /or refurbish large specialised equipment. They also offer comprehensive certification and non-destructive testing (NDT) services.

Mining crusher machinery - which can be mobile for multiple-site operation or fixed within the processing facility - is configured to break down very hard material such as country rock into smaller pieces, right down to small gravel aggregates and even usable rock powder. This includes the reduction of valuable mineral ores for onwards processing, of course. Crushers apply mechanical force and pressure to break the hard materials down at an efficient rate for further processing.

The operations of such machinery are often categorised by the size to which the material is reduced. Mining crushers operate in "phases" to ensure the force is distributed efficiently so as not to damage the plant itself. Primary crushers produce coarse fragments. Secondary plant reduces these further.

The company says: "Canadian mining professionals can provide service options to a variety of mining industry equipment, and often have extensive knowledge and experience with a variety of crushing machines."

In normal use excavator-transporters bring the raw material to the crusher's feeder for primary processing. The feeder device is usually a conveyor belt or other type of moving surface which transports the material towards the crusher itself, then on to the screens for further processing. While the material is reduced significantly at this stage there are usually several more to be gone through with most mined materials. So mining crushers themselves



Mining crushers operate in phases, to ensure the force is distributed efficiently and prevent damage to the plant

provide the preliminary stage of processing, which means they usually need the most repair and maintenance.

Today's mining crushers are aided by milling processes to create the finest consistencies of process-ready raw materials. The crushing process itself initiates a great deal of wear-and-tear, so the machines themselves are likely to need repair throughout their working lives. These machines require skilled hands and equipment to repair the various components of the crushing device itself. Manufacturer

support in the fabrication and modification of parts for adaptive procedures in the machinery process at all stages is often found to be necessary for many fabricators.

All mining machinery needs expert skills to carry out maintenance and modification; crushers are no exception. These particular machines require more frequent maintenance because they often process such very hard and harsh materials. Residues and resistance are two of the major causes for the need to repair and/or refurbish today's mining crusher machines. ■



# Dynamic productivity from Dressta products

LiuGong's European subsidiary is set to reach further into Africa, with a more dynamic business model and more sophisticated machines



Dressta is well represented in Africa and the Middle East, and African markets in particular are set for expansion

**O**perational efficiency and minimal maintenance are key attributes of Dressta's machines. Each vehicle produced by the Liugong subsidiary is powered by highly-efficient, high-performance Cummins engines. Moreover, every major component on each of its machines can be replaced on site within hours.

## Specialists in design and manufacture

Dressta was acquired by LiuGong in 2012, and today is a wholly-owned entity within the LiuGong group of companies. It stands by its aim of high productivity, ease of maintenance on site, durability, reliability and a comprehensive aftermarket sales support. It produces five product lines and 42 models. Its processes are all accredited to ISO 9001.

The company specialises in coal-handling, and its dozers are designed specifically for this application, with specialised coal blades a key feature of the product portfolio. Its specialist blades range from 21 to 47.5m<sup>3</sup>. Its cabs are quiet, comfortable and protected from dust.

Forestry is another key application for Dressta's dozers. Features including reversible fans and protection guards ensure minimal downtime, and quick recovery.

## Comprehensive support for core applications

Dressta's loaders work efficiently and effectively within oil and gas and utility environments, and safety is a core component here, with operators informed at all times of the environment in which the machine is operating.

Another interesting attribute of Dressta's offering is the in-house focus on complete production - so there is no need to go to a third-party manufacturer for any attachment. Dressta listens to its customers and has sought to manufacture and deliver any possible option required by any operator.

## Connected machines that meet more customer needs

The company tailors products to meet customers' expectations globally. Whether enabling roadbuilding in Mexico, or coal-mining in Poland, Dressta's teams work hard with dealers and with customers to meet all of their requirements. Dressta is also committed to comprehensive customer support even where customer requirements are unique and particularly challenging, as in the gold-mining operations of Uzbekistan.

The company is already well-represented in Africa and the Middle East. African markets, in particular, are key targets for planned expansion. Dressta's business model accounts for provision to operators engaged in infrastructure projects in the years ahead, particularly with a new range of models to be launched by the company in 2016 and beyond; the company delivers for niche applications and extreme applications, and will focus heavily on wheeled and tracked machines for mining, road construction and landscape. The new machines will be game-changing products, connected machines produced following development with companies such as Trimble. ■

# Integrated pumping solutions for mines

Integrated Pump Technology supplies 20 Bravo 900 submersible slurry pumps to Kamoto Copper Company in DR Congo

Integrated Pump Technology of South Africa has supplied 20 Bravo 900 submersible slurry pumps and 20 M20 control panels to Kamoto Copper Company (a subsidiary of Katanga Mining) of DR Congo. These heavy duty electrical submersible slurry pumps are the largest of their kind in the Grindex product family, according to Klint Bawden, general manager sales and marketing, Integrated Pump Technology.

Chris Heunes, export sales manager, Integrated Pump Technology, explained recently that the company's products are being deployed at three different areas of Katanga Mining's operations in DR Congo. These are the Luilu Metallurgical Plant, the Kamoto Concentrator (KTC) and KOV Open Pit Mine (KOV). He said, "Our Bravo range has proved particularly successful for Katanga Mining, which has been using



Pumping slurry is one of the most demanding applications for any pump, mainly due to sediment build-up

Grindex products for three years now and has about 300 pumps in operation."

## The market for aftermarket mining services

EC Mining has been formally appointed as the distributor for Integrated Pump Technology for DR Congo and is in the process of establishing a fully-fledged service and repair workshop at Kamoto Copper Company to cater for its aftermarket needs.

"Pumping slurry is one of the most demanding applications for any pump, due to such issues as sediment build-up leading to costly downtime and repair costs," Bawden explained. "The Bravo range from Grindex is robust and hard working enough to result in reduced operating and maintenance costs."

These pumps, with a maximum submersible depth of 20m, do not require any support superstructure, which makes for quick and easy installation and less

space needed for their operation.

The cartridge seal is preassembled for quicker and easier mounting, while the Hard-iron™ impeller and pump housing feature high wear resistance, which is critical in slurry applications. The large throughlet means that the pump can handle solids of varying sizes. A leakage sensor allows for early detection of any problems, while the single adjustment screw makes it easy to tweak the impeller for optimal performance. The agitator has been designed specifically for coarser slurries, and is able to stir up and pump sand, sludge and solids in suspension.

Integrated Pump Technology has also supplied around 50 stainless steel Inox pumps over the last six months.

"These are specialised electrical submersible drainage and sludge pumps that can handle acidic operating conditions," Bawden explained. Features include zinc anodes for added protection, with all cast parts made from acid-proof stainless steel. ■



The Bravo range is good for Katanga Mining, which has been using Grindex products for the past three years



# Materials for multiple mining scenarios

Weir Minerals Africa offers comprehensive valve solutions for diverse applications from abrasive mining to specialised industry

Valves form an integral part of Weir Minerals Africa's total solutions package for the mining and minerals processing and general industrial sectors, according to Kobus Steyn, the company's product manager for valves. Weir Minerals Africa offers two major valve brands - namely, Isogate valves and BDK valves.

Isogate valves are ideal for abrasive applications in mining and minerals processing.

"Isogate slurry valves operate in some of the harshest and most demanding environments globally," said Steyn. Applications range from base metals (copper, nickel, iron) to precious metals and gems (gold, silver, platinum and diamonds) and industrial minerals (phosphates, talc, kaolin, silica and clays).

Isogate slurry valves provide a cost-effective solution for on/off, throttling and reverse flow controlling of flowing media in industrial processes that involve abrasive or corrosive materials. These range from sand and gravel to dredging, water and waste water, food collection, preparation and processing, coal-fired power plants, pulp and paper mills and shot and sand blasting equipment manufacturers.

## Successful applications

Steyn commented that Isogate slurry valves are so successful in such diverse applications because they feature ease of maintenance and low total cost of ownership as the main design criteria.

"Conventional valves are only designed for liquid service and therefore seldom produce satisfactory results when applied in abrasive and/or corrosive slurries," he noted. Typical problems include rapid wear of valve seats and liners, sticking and leakage to the atmosphere during operation.

Isogate slurry valves can operate under wide pressure and temperature ranges, while sleeves are available in a variety of materials, from natural rubber to EPDM, nitrile or neoprene. A unique feature of these valves is that Weir Minerals Africa can offer Weir Minerals' proprietary abrasion resistant Linatex premium natural rubber liners.

Isogate mechanical pinch (MP) valves utilise a flexible rubber-lined pinch sleeve that is collapsed between two mechanical bars for accurate modulating control, positive closure and drip-tight shut-off. The inside diameter of the pinch sleeve is full-line size for maximum throughput and minimum pressure drop.

Isogate PP (pneumatic pinch) valves are pneumatic or hydraulic actuated enclosed body pinch valves ideal for remote operation using typical plant air and not requiring auxiliary cylinder operators. These valves use flexible rubber lined pinch sleeves and pinch liners enclosed in robust cast metal bodies that collapse when plant air or hydraulic pressure is applied.

Isogate heavy duty slurry knife gate valves combine a low maintenance design with a range of materials for diverse



Weir Minerals offers two major valve brands – Isogate valves and BDK valves. Isogate valves are ideal for abrasive applications in mining and mineral processing

applications. The particular focus here is abrasion resistance, Steyn explained. For example, the WB Series features a robust design and rugged, heavy duty construction for increased reliability and wear life, together with ease of maintenance and cost effectiveness in a lightweight, compact package.

Weir's BDK valve range is ideal for general and specialised industrial applications. These range from power generation to oil and gas, petrochemical, steel, fertiliser, pharmaceuticals and water treatment. The BDK valve range encompasses ball, butterfly, gate, globe and check valves, as well as diaphragm, knife gate and plug valves.

"What is important to note is that we are the original equipment manufacturer, as opposed to being a distributor of other products. We manufacture and distribute our own products, which gives us a significant competitive advantage in the marketplace," Steyn commented. "Globally, Weir has installed Isogate and BDK valves across numerous industrial sectors. We have won a number of projects where we have supplied the valves, actuators and full hydraulic systems, designed by Weir Minerals' engineers. We have also supplied complete packages to engineering procurement contractors (EPCs) and end users that include butterfly, ball and check valves, as well as control and safety relief valves." ■

# Copper in Africa

## Uncertainties about African copper mining prospects, alongside encouraging signs of growth

On 1 January 2015, Zambia's government took a controversial decision to increase royalties from the mining sector three times over. Mining royalties for open-pit copper mines jumped from six per cent to 20 per cent. For underground mines, royalties were also slightly raised from six per cent to eight per cent. Back in October 2014, the country's finance minister said that the move had to be taken in order to ensure a more "equitable distribution of the mineral wealth between government and the mining companies". However, leading mining companies operating in the country have expressed their dismay at the move.

The developments have major repercussions. Zambia is the eighth largest producer of copper in the world. One of the most vocal opponents to the tripling of royalties is the mining company Barrick Gold. The multinational has already announced that it is commencing procedures to suspend its work at the Lumwana copper mine in Zambia. In a recent statement, Barrick Gold argued that

the new tax regime "eliminates corporate income tax, but imposes a 20 per cent gross royalty on revenue without any consideration of profitability."

"The introduction of this royalty has left us with no choice but to initiate the process of suspending operations at Lumwana. Despite the progress we have made to reduce costs and improve efficiency at the mine, the economics of an operation such as Lumwana cannot support a 20 per cent gross royalty, particularly in the current copper price environment," said Barrick Gold co-president Kelvin Dushnisky in a statement.


"We sincerely regret the impact this will have on our people, as well as the communities and the businesses that depend on Lumwana, and we remain hopeful that the government will consider an alternative solution that will allow the mine to continue operating," Barrick Gold co-president Jim Gowans also said.

Barrick Gold is now working towards the transition of Lumwana "to care and maintenance". According to the company, it intends to start significant reductions in the

workforce in March in order to honour the legal notice period. Barrick Gold aims for the transition period to be over by the second quarter of this year.

"There has been resistance from the mining sector to the introduction of a one tier system which abolishes corporate tax on mining companies but instead, maintains mineral royalty," said KPMG Zambia tax partner Michael Phiri.

"While some mines can sustain the increased royalty payment, others cannot. Barrick has indicated that it would not be economical to continue to operate its Lumwana Mine. The ore grade at Lumwana is said to be very low while the cost is at the higher end. Further, the one-tier system will not encourage exploration activities and green field operations as there is no opportunity to recover capital costs by way of capital allowances," Phiri said.

Lumwana is a major operation for Barrick Gold. The mine is in the country's Northwestern Province. The company acquired it when it took over Equinox Minerals in 2011 with a US\$7.3bn purchase. 



▶ The mine's net carrying value is currently estimated to be around US\$1bn. During the initial nine months of 2014, Lumwana produced around 138mn pounds of copper at C3 fully allocated costs coming to US\$2.98 per pound. The mine also possessed 6.6bn pounds of copper in its reserves as of December 2013. Furthermore, the mine supports around 4,000 direct jobs.

Barrick Gold has highlighted in the past that the mine is of significant importance to the local economy; it has bought almost US\$400mn worth of goods and services from local suppliers. Lumwana has also helped to finance a diversity of local social projects in sectors ranging from education to healthcare.

Meanwhile, Canadian mining multinational First Quantum Minerals has also expressed worry about the recent decision taken on royalties. In an interview with *Reuters* in December 2014, First Quantum president Clive Newall said that the move would be a "massive disincentive" in terms of investing in the country's mining sector unless the government offers some kind of capital relief.

First Quantum has not announced any closing down in operations or layoffs as a direct result of the tax regime changes, as Barrick Gold has done. Nonetheless, First Quantum did announce last summer that it would put off more than US\$1bn worth of investment projects in the country as a direct result of its uncertainty about the tax regime.

#### Under pressure to reverse the tax hike

As the significance and potential impact of the government's move starts to sink in, trade unions, business groups and even international groups like the World Bank and International Monetary Fund have started calling for the new tax regime to be scrapped so the royalty rates can be reversed. Some fear that Barrick's decision could have a ripple effect, prompting other companies to take similar measures, which would be disastrous for the industry. Political opponents have also seized upon the controversy. Nevers Mumba of the opposition party Movement for Multi-Party Democracy, had pledged to reduce the royalty rate again if he won the country's presidential election, the by-election for which took place in January 2015. Although Mumba was not victorious, analysts predict that the royalty increase is likely to be reversed very soon after the election, possibly within weeks.

However, it is likely that the government will seek a compromise rather than a

complete return to the previous tax arrangement before the January 2015 change. Some analysts think that the government could suggest a slight increase in the royalty charges for open pit mining by just a few percentage points. Alternatively, the government might be inclined to reinstate the 2014 tax regime but try to address issues with tax loopholes.

"There is anxiety among the mining companies in Zambia," said Phiri. "A lot hinges on the mining policy to be adopted by the new President. That notwithstanding, electricity supply capacity has been increased by the main power

supply company. Meanwhile, prospects for Zambia's copper smelting sector are looking uncertain.

"One major smelter [Kansanshi Smelter] was commissioned at the end of December 2014 and will add to the existing three smelters in Zambia. With Kalumbila coming on stream, there will still be a deficit in smelting capacity," said Phiri. "Further, Kansanshi mine is known to have stockpiles of ore awaiting processing and is holding in excess of 100,000 metric tonnes of copper which adds to the smelting deficit. As to whether companies will want to build new smelters in Zambia, that depends largely on the fiscal regime post 20 January 2015."

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DR Congo has experienced growth in production, overtaking Zambia as the leading producer of copper in Africa

### ▶ A mixed story in DR Congo

Elsewhere, copper mining projects have experienced a rocky start to the year. Tanzania and Zambia recently completed a railway line to help with the exporting of copper from Zambia and DR Congo to markets via Tanzania's port in Dar es Salaam. However, workers from both countries have launched a strike, arguing that they are owed five months of unpaid salaries. The TAZARA line has been struggling for some time. It has been running at a loss and unable to raise enough money to keep up maintenance as well as pay its workers.

The copper mining industry is also experiencing a difficult time in the Democratic Republic of Congo (DR Congo), Africa's biggest producer. This is partly down to political uncertainty. In particular, President Joseph Kabila's relations with the governor of DR Congo's most important mining province Katanga are reported to be increasingly strained. It is believed that governor Moise Katumbi is no longer regional head of the ruling party. Reuters has also reported that Kabila has taken the measure of calling police from the Katanga province to the capital in order to deprive Katumbi of ammunition.

The measures against Katumbi's influence come after the governor made a controversial speech which many have interpreted as heavily critical of Joseph Kabila.

Analysts still hope that 2015 will prove to be a positive year for DR Congo's copper mining industry. The Swiss mining conglomerate Glencore has been investing hundreds of millions in their mining

operations in DR Congo, raising hopes that the country can achieve significant rises in production. Glencore is currently chasing a production target of 200,000 tonnes per year at its most important mine, Mutanda. Analysts have predicted that copper prices will rise in the coming months, which Glencore should be able to profit from.

Phiri from KPMG is generally upbeat about prospects for DR Congo's copper mining industry in 2015. He said, "It is expected that some expansion projects by existing mining companies will come on stream in 2015 such as Kalumbila Mine by FQM. DR Congo has experienced growth in its copper production, overtaking Zambia as the number one copper producing African country. The outlook from the two major copper producers in Africa is largely positive."

There have been glimmers of good news in terms of technology investments in DR Congo's copper mining infrastructure too. For example, operators of one particular mine in DR Congo are to start using a waterjet from Jet Edge to double its productivity. The EDGE X-5 5-axis waterjet is the second waterjet system to be installed in the mine.

"The EDGE X-5 is a good system," said Jetstream subcontractor Jake Hall. "It's intuitive and easy to operate. I've seen lots of systems in my 11 years working with waterjets and it seems to do the job very well and is easy to teach. The Jet Edge Aquavision Di controller is extremely reliable. The software is great. It solves a lot of the problems of other CAD/CAM software. It's been specifically designed with waterjetting in mind. Lead-ins and outs are

easy and it's easy to nest multiple parts. Most importantly, you're not stuck to a certain order. With some software, if you miss one step, you have to start all over again. Jet Edge's software is flexible and it's not labour intensive. The library of materials is good and the speed control is good."

"The X-Stream pump is bulletproof," Hall added. "We feel comfortable that we have a good support network and that we can call Jet Edge any time, day or night."

### New developments in Uganda

In 2015, discussion and interest around Uganda's mining sector is also likely to intensify. This is because Kilembe mine in Uganda is due to reopen this year after being rehabilitated by a Chinese investor. Kilembe has not been properly operational for more than thirty years. However, Tibet Hima Industry Company Ltd has revamped much of the site's machinery. It is anticipated that the Chinese company should start producing copper concentrate as early as May. In August, copper smelting should also launch after a metallurgical tests to determine copper quality, and a smelter has been installed. The company aims to produce 5,000 tons of copper daily, with initial production commencing at 1,500 tonnes per day and then doubling a year later. Tibet Hima already has plans to expand its copper operations in Uganda. It is reported that the company is having discussions with the government about taking over Kasese Cobalt Company Ltd, which was originally set up to see if it was possible to convert cobalt-rich sulphide concentrate into smelt copper. ■



# Guinea gains mining interests

The investment framework around iron ore extraction and processing in the West African country is under development

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

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

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

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

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

Guinea has been dreaming of tapping the potential of Simandou for some time; the state first handed out exploration rights covering the whole of Simandou to Rio Tinto in 1997. Rio Tinto then lost its exploration rights back in 2008 in a dramatic twist, after it was accused of doing little to nothing with its



Guinea could see iron ore production levels of as much as 200mn tonnes a year for 25 years (Photo: Lop Buri)

mining stakes in the country. BSG Resources then snapped up the exploration rights in a controversial deal, which did not require BSG Resources to make any upfront payments. The firm soon sold over half of its interest to leading global mining company Vale for US\$2.5bn. However, things started to go sour for BSG Resources when a new democratically elected government that came to power in 2010 alleged that BSG Resources had made bribes to secure its bargain exploration deal and took away BSG Resources' rights.

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

Both BSGR and Vale are the object of a further lawsuit filed by Rio, who has accused the pair of trying to conspire to gain key information on Rio's Simandou development. According to Rio, which now controls just the southern half of Simandou, Vale pretended to be interested in buying Simandou's rights so that it could gain access to confidential

intelligence which it could then use to develop its own site. Rio Tinto alleges that it has lost billions as a result of the situation that has developed and is consequently seeking "compensatory, consequential, exemplary and punitive damages...in an amount to be determined at trial".

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

"At the time the defendants devised their fraudulent scheme, Rio Tinto had spent 11 years and hundreds of million of dollars developing mining operations at Simandou and expected it to yield substantial profits into the future," according to Rio Tinto's Complaint, which it filed against Vale and BSGR in the United States District Court for the Southern District of New York in April.

The Complaint details how Rio Tinto and Vale first started having discussions about the possibility of Vale buying a stake in Simandou in August 2008. ■

– Sherelle Jacobs

# Equipment

## Scheuerle's HighwayTrailer MES makes transportation more efficient

The TII Group, worldwide leading in the manufacture of heavy transport vehicles, introduces a new and absolutely unique vehicle to the North American market: The new Scheuerle HighwayTrailer MES (Modular Extra Strong) ties in with the success of former, non-modular models for this market and completes the successful Scheuerle HighwayTrailer series. The Scheuerle HighwayTrailer MES merges the requirements for transporting oversize as well as concentrated loads in one vehicle, thus enabling its owner to perform an unprecedented range of transport jobs with just one modular vehicle.



One vehicle, countless possibilities: The Scheuerle HighwayTrailer MES offers a multitude of possible combinations, allowing the customer to cover a broad range of transports

Our customers asked for a multifunctional, extra-sturdy but low weight modular solution and we developed it," commented Roland Fischer, area manager sales at TII Sales. "The Scheuerle HighwayTrailer MES allows a configuration as a semi-trailer for all kinds of everyday's loads as well as an assembly with two platform trailers for an extremely long load like a splitter column, vessels or a large girder weighing up to 115 tonnes" adds Fischer. This stunning solution, offered solely by the TII Group, enables transportation businesses to extend their range of transportation if needed while, at the same time, using the Scheuerle HighwayTrailer MES in a semi-trailer version for "everyday jobs".

## Chryso makes admixtures for Rocla's SCC

Construction chemicals specialist Chryso Southern Africa is supplying precast product manufacturer Rocla with its Chryso Optima 203 and Chryso Quad 20 admixtures for use in for self-compacting concrete (SCC). Kabelo Sepotokele, technical sales representative at Chryso Southern Africa, said, "Chryso Southern Africa is a market leader in concrete and cement admixtures and ancillary products. Due to the latest developments in admixtures, modern concrete is now attaining unparalleled levels in important areas, such as mechanical performance, workability and durability."

Chryso Optima 203 is a new generation, high range water reducing/superplasticising admixture, based on modified polycarboxylate technology.

"This admixture is formulated primarily to achieve high workability with a wide range of cements, which lends itself to the sophisticated requirements of SCC mix design," Sepotokele explained. Chryso Quad 20 is a stabiliser that features a unique formulation to increase the viscosity of cement paste, with a limited impact on concrete slump and flow.

Jason Roberts, a civil technologist at Rocla Roodepoort, explained recently that the global trend amongst precast product manufacturers is to use SCC as an alternative to conventional vibrated concrete (CVC). With its extremely high workability (flow is measured rather than slump), SCC does not require post-cast vibration, which means a greatly reduced noise level in the precast yard. He said, "SCC does all the work for you; you just cast it. The end result is a precast element that usually exhibits a generally superior surface finish, provided that the design mix is correct."

Working with Chryso Southern Africa, technical specialist for cement & concrete technology at PPC George Evans was primarily responsible for formulating the specific design mix that Rocla is using for its SCC. Roberts said that Rocla began experimenting with SCC in 2012, mainly due to the complex forms it had to replicate for several of its products such as the Alfabloc retaining wall system, REBLOC road



Chryso will supply 20 admixtures for use in self-compacting concrete

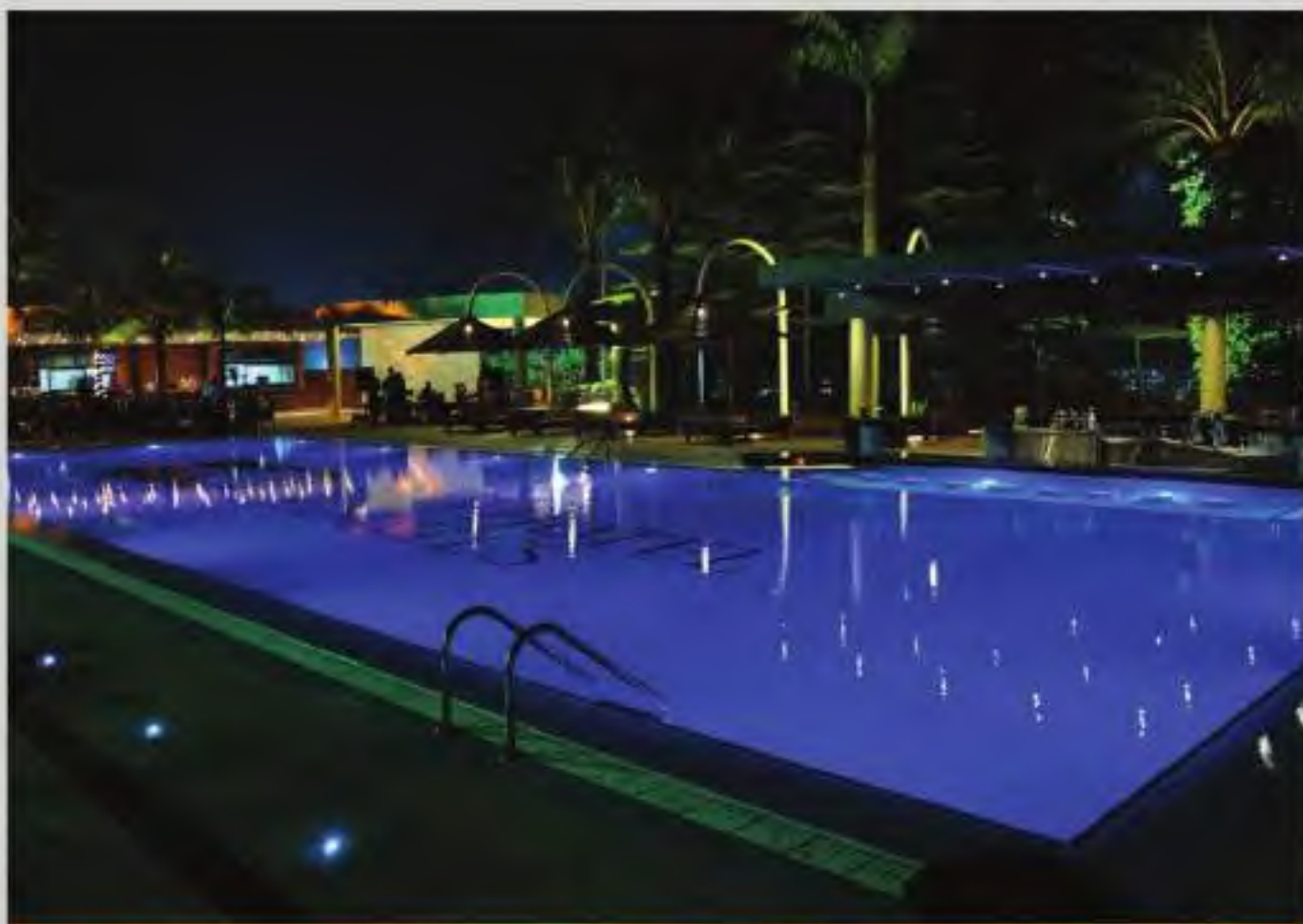
barriers and wing walls for stormwater outlets. "SCC is ideal for all of our wet-cast applications. Typically our wing walls are extremely thin walled - in some cases they are only 80 mm thick. Our Alfablocs, which are literally cast in the shape of an 'A', also require complex, thin-walled moulds. It is difficult to achieve this with CVC. Hence the main reason for incorporating SCC into our production as it gave us the ability to take on more complex projects and allow us to broaden our product range," Roberts said.

Rocla called on the expertise of Evans and Chryso Southern Africa when it wanted to change its concrete mix design.

"We had to look at redesigning our SCC mix when we changed material supplier. You cannot simply change the cement and sand and expect to get the same product. SCC is a lot more sensitive. It is almost a new animal in terms of concrete," Roberts said.

Rocla assembled an expert team of concrete technologists to trial its SCC, including Evans, Warren McKenzie, Murray & Roberts Centre of Concrete Excellence, and Eddie Correia, Brenton Brouard and Sepotokele, all from Chryso Southern Africa. "Chryso Southern Africa was recommended to us, and it provided some admixtures for us to test. We conducted preliminary trials and it worked out well. The end result was a SCC that allows us to strip in six to eight hours, whereas we could not double strip originally," Roberts said.





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# Advanced generator set technology launched in Africa

Industrial operations across Africa can reduce their fuel costs and minimise their impact on the environment with the new range of high-horsepower QSK95 Series generator sets launched locally by the African division of Cummins.

The QSK95 generator sets are Cummins Power Generation's most powerful diesel generator sets to date, offering up to 3.5MW 60 Hz and 3.75 MVA 50 Hz. They are designed with the highest kilowatt per square foot ratio in their class, creating a smaller footprint that achieves a 20 per cent improvement in power density.

The durable and robust QSK95 Series generator sets are needed in harsh environments, such as mining, oil and gas.

Cummins Southern Africa Power Generation director Kobus Coetzer noted that the new generator sets offer more power and best-in-class fuel economy. "Over the course of 8,000 hours of

operation, the QSK95 can achieve fuel savings of more than US\$400,000 (R4-million+)," said Coetzer. Fewer maintenance requirements, longer service intervals and 2,000 hours to major overhaul are some of the reasons why these generator sets are ideal for prime power applications. The generator sets allow 100 per cent of rated load in a single stage, and are ready to allow facility load in less than 10 seconds. The QSK95 Series has a smaller footprint, so does not necessarily need as much space to install and, in multiple-generator set applications, less generators are required to achieve the necessary power output. Other features include reduced costs, as three-year/1,000 hour oil and filter change intervals, low temperature after-cooling, which enhances radiator package sizing and contributes to the generator's smaller footprint, condition-based maintenance

sensors that analyses air and fuel filter restrictions and enable filter changes only when required, a single shaft and a dual element cooling pump that reduces the chance of possible leaks and failure. A positive flow circulating pump in the coolant heater that allows even heating throughout the engine block for quicker and more reliable starts, an oil cooler that gives access to the thermostat without lifting the engine. A mounting rail design allows the alternator to slide back on the chassis without being lifted.



The qsk5 95 hedgehog engine from Cummins

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