

# African Review

August 2015

of BUSINESS and TECHNOLOGY

P50



## Annual Construction Buyers Guide

P86

# Chemical supply to infrastructure sectors



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# Editor's Note

This issue of African Review of Business and Technology assesses developments in technology, finance, transportation, power, construction and mining.

Between pages 20 and 31, there are reports on investment in Angolan business, on Islamic investment and banking operations, on trade between India and Nigeria, and on the adoption of cloud computing technology.

Transport and logistics concerns are addressed on pages 32 and 33, with articles on intermodal policies in East Africa and on automation of cargo delivery.

The economic gains already accrued and in prospect from renewable energy sources, and also from the ever-present demand for generators, are assessed between pages 34 and 46.

However, the construction industry forms the core focus sector of this month's issue, with a comprehensive annual Construction Buyers Guide placed alongside analyses of infrastructure developments and innovative equipment from page 48 to 87.

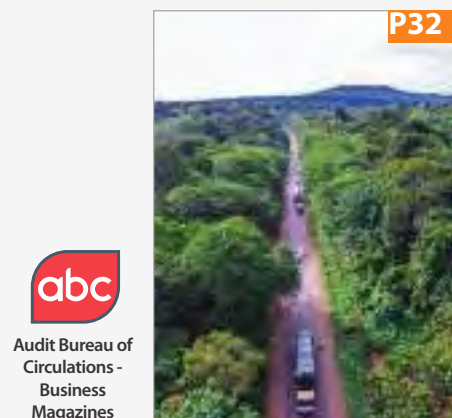
This issue's coverage of key developments in the mining sector, from page 88 to page 92, include the integration of a high-speed communications network in a platinum mine, new chutes for material handling, and the supply of machinery and systems to serve plant operations.

Andrew Croft, Editor



Main cover picture: Chryso Chemicals  
Inset, bottom left: T Systems  
Inset, top left: Caterpillar

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# Agenda / North

## Major Egyptian energy contracts awarded to Ansaldo Energia

**Ansaldo Energia**, which is 44.8 per cent owned by **Fondo Strategico Italiano**, has been awarded three major contracts in Egypt worth over EUR240mn.

The first two, Al Shabab and West Damietta, cover the conversion to combined cycles of two power plants owned by **Egyptian Electricity Holding Co**, the **Egyptian Government Electricity Authority**, which manages over 90 per cent of the country's power generation capacity. They entail the supply and commissioning of three steam turbines rated 265MW each, including the relative hydrogen-cooled generators, air condensers, transformers and auxiliary systems.

The third contract is for the supply of two AE94.2 gas turbines rated about 170MW each (in ISO conditions) and the relative generators, plus engineering, erection and startup services for the open cycle power plant at Al Mahmoudia (Al Buhayrah State) assigned by **Elsawedy Power System Projects International**, the leading provider of power generation products in the Middle East and Africa.

The success of these three major initiatives reflects the level of satisfaction and appreciation shown in Ansaldo Energy by Egyptian customers on the back of the quality and reliability demonstrated by recent supplies of turbogenerators.

With these orders, Ansaldo Energia has installed over 4,000MW of power generating capacity in the country and confirms its ranking as one of the most important OEMs in Egypt.



Ansaldo Energia awarded three major contracts in Egypt worth over EUR240mn

## Image Nation makes Arabic TV with Discovery Communications

Middle Eastern content creator **Image Nation** has formed a partnership with pay TV programmer **Discovery Communications** to create and launch a new Arabic language TV channel for the Middle East and North Africa. 'Quest Arabiya' will be free-to-air and is scheduled to go live in the final quarter of 2015.

The channel, which will deliver factual and reality programmes, will be a combination of regionally-produced original material and Arabised content from Discovery's vast library of non-fiction shows. The channel is aimed primarily at Arabic-speaking men aged between 16 and 44, but with material that will appeal to the entire family.

The venture highlights the growing importance of TV and digital media as platforms for original content and commissions in the Middle East, providing new opportunities for local talent and production companies to increase their output, while providing a host of new training and development opportunities in the media industry in the region.

The move means more stories from across the region will be brought to life through specially commissioned Quest Arabiya shows. And under the terms of the deal, Discovery Communications has the option to acquire Image Nation's content for broadcast on its international channels, meaning the region's stories have the potential to be told around the world.

"In partnering with Discovery to launch a new TV channel in the Middle East and North Africa, we are doing what Abu Dhabi does best - marrying world-class expertise with regional knowledge," said Mohammed Al Mubarak, chairman of Image Nation Abu Dhabi. "Quest Arabiya will provide a needed boost to the private media sector in the UAE as we will be commissioning more content than ever before and producing at the highest international standards."

## Rabat contracts averda for urban waste management

Integrated waste management solutions provider **averda** has been awarded a seven-year contract to provide the Moroccan capital Rabat with city cleaning services. The award follows a competitive international tender involving renowned multinationals from the field of waste management. averda chairman Maysarah Sukkar said, "We are pleased to have been selected again as a waste management provider in Morocco's capital and we look forward to a long-term collaboration with the city of Rabat. averda will deliver waste management services for a population of over

half a million in Rabat, and will work closely with the city's council and the local authorities to listen, understand and answer its stakeholder's expectations."

Morocco has been a strategic long-term choice for averda since the company was awarded the contracts for a sanitary landfill management, waste collection and cleaning in 2012. Since that date, averda has been providing many provinces with extensive sustainable environmental services that range from street cleaning through to waste collection, treatment, disposal, and recycling.



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# Agenda / East

## Emirati oil firm invests in East African oil and gas

Dubai-based **Gulf Petrochem Group** has acquired **Essar Petroleum East Africa** and rebranded it to **ASPAM Energy (Kenya)**. The deal enhances the group's integrated services and products for the downstream supply chain in the oil and gas sector in East Africa.

Gulf Petrochem Group secured the due approvals from Kenya's **Energy Regulatory Commission (ERC)**, its **Competition Commission** and other regulatory bodies.

ASPAM Energy (Kenya) continues with commitments to cater to customers in East Africa who were earlier serviced by Essar Petroleum East Africa Ltd in the fuel retailing segment. In addition to marketing petroleum products through outlets earlier serviced by Essar Petroleum East Africa Ltd, ASPAM Energy (Kenya) intends to develop storage and retail infrastructures and expand retail networks.

Gulf Petrochem Group, has a trading arm active in trading fuel oil, gas oil, bitumen, base oil, etc. ASPAM Energy (Kenya) now concentrates on these products in East Africa.

"With the global market for bitumen expected to reach US\$95.77bn by 2020, according to a new study by **Grand View Research, Inc**, our group has recognised the potential for business growth within the African continent. Through this acquisition, ASPAM Energy (Kenya) will allow us to efficiently cater to East African customers and capitalise on a market which we plan to make our East African Hub", said Sudhir Goyel, Gulf Petrochem Group managing director.



Sudhir Goyel, Gulf Petrochem Group managing director

## Kenyan banks' capital requirements

**Kenyan Ministry of Finance** Cabinet Secretary Henry Rotich has set out, in the nation's 2015/16 budget proposals, a requirement for Kenya's 43 commercial banks to raise their minimum core capital from US\$10.1mn to US\$50.54mn over three years, to make them more competitive and to empower them to take on counterpart institutions from South Africa, Nigeria, Angola and Egypt. In the last few years, Kenyan banks have been unable to handle mega-deals like those involved in the oil business due to their low capital base. Under the proposed re-capitalisation, banks will increase shareholder funds to US\$20.21mn by December 2016, US\$35.38mn by December 2017, and finally US\$50.54mn by December 2018.

"We plan to streamline the architecture of the financial sector to have strong sub-sectors with stable service providers who can compete regionally," said Mr Rotich.

*Mwangi Mumero*

## The best of Italy on show at East Afripack

The second edition of East Afripack has been scheduled to be held in Nairobi, Kenya, 12-14 October 2016. This processing, packaging and converting exhibition has been recognised as an important contribution to the emerging economies in sub-Saharan East Africa. Moreover, East Afripack has been added to the list of key exhibitions promoting the Italian manufacturing and industrial sector on foreign markets, developed by the **Italian Ministry for Economic Development**.

Organised by **Ipack-Ima Spa** in joint venture with **PMMI**, the Association for Packaging and Processing Technologies in the USA, and in partnership with **UNIDO**, the

**EAC** as well as Kenya's **Ministry of Industrialisation and Enterprise Development**, East Afripack 2016 will receive the support provided by the **Italian Government** in its Extraordinary Plan 2015-2017 developed to increase the competitiveness of Italian exhibitions which are ranked fifth on the international ranking. The plan will fund specific actions identified as strategic for the development of SMEs in new markets.

East Afripack 2016, which returns to the Kenyatta International Conference Center (KICC), Nairobi, is rooted in the success obtained by the exhibition's debut in 2014 and the significant rebooking requests

received from over 50 per cent of the 136 international exhibitors.

Starting with the 2016 edition, East Afripack will benefit from a new important logistics base: the Ipac-Ima representative office managed by Agroteq, in Nairobi.

In line with its commitment to contribute to technology upgrade and to focus the importance of packaging as a strategic springboard for the technological upgrade and increased competitiveness of local SMEs, the East Afripack brand will organise once again a scientific conference that will take place in Uganda at the beginning of 2016 emphasising on development priorities of the East Africa region.



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# Agenda / South

## Zampalm set to produce crude palm oil in Mpika

Zambian palm oil business **Zampalm** - a subsidiary of **Zambeef Products** - has commissioned a US\$1mn crushing and processing plant in Mpika. The factory will begin processing crude palm oil in September 2015, with first harvesting planned for August through to January 2016. It is expected to reduce Zambia's dependence on crude palm oil and other edible oil imports drastically.

The plant has a capacity to crush two to three tonnes of fresh palm fruit per hour, producing a yield of 20-30 per cent of crude palm oil.

The plant comprises four "cookers", a boiler, and a tumbler.

A digester will separate the oil from the fruit. The used fruit bunches will be recycled into the boiler as fuel or used as organic fertiliser. The crude oil will be sent, then, for refining into cooking oil or biofuel.

Following completion of the new crushing mill, a second two-tonne mill is expected to be installed in 2017 and a further 10-tonne plant the following year, taking crude palm oil production up to 17,000 tonnes a year.

The operation currently employs over 500 workers, with the workforce expected to grow as the harvesting season draws closer and operations grow.

The total investment cost in the Zampalm project is estimated at US\$41.5mn, of which Zambeef has spent US\$20mn. Zambia



Zampalm plantation manager Trusted Mwiinga inspects the new plant

currently imports crude palm oil worth over US\$70mn every year, which is a costly exercise for a country that consumes around 120,000 tonnes of cooking oil but only produces 30-50 per cent of required total supply. More than half of Zambia's edible oil consumption is imported from the Far East, East Africa and South Africa.

At current prices, the average production of crude oil of 3-3.5 tonnes per hectare could generate more than US\$170mn in revenue over the next decade.

## Leuze offers dynamic data transmission

**L**euze has developed a data transmission photoelectric sensor with a high optical transmission of 100 Mbit/s. The device allows data transmission without cabling and without interference, and is available from sole Southern African distributor **Countapulse Controls**, which supplies sensing, measurement, counting, switching, monitoring and positioning instrumentation. The DDLS 500 optical data transceiver is able to instantaneously transmit all common Ethernet protocols up to distances of 120 metres. These protocols include Profinet, EtherNet IP, EtherCat, Ethernet TCP/IP and Ethernet UDP.



The Leuze DDLS 500 optical data transceiver is able to instantaneously transmit all common Ethernet protocols up to distances of 120 metres

Constant monitoring and notification of the signal level on the easy to read LED display allows quick reaction to issues like soiling of the lens, ensuring simplified maintenance and diagnostics.

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## Cimpor to grow in Mozambique

**Cimentos de Moçambique**, a subsidiary of Portuguese cement producer **Cimpor**, has announced plans to invest US\$250mn in a new integrated cement plant in Nacala, Mozambique. The new facility is expected to start functioning from 2018.

According to a statement issued by the company, "The new capacity to be installed increases the efficiency of the response to local demand for cement, while Cimentos de Moçambique recognises its role in driving the sustainable economic development of the Nacala region."

Cimentos de Moçambique has been producing cement since 1920. Its current footprint in Mozambique includes an integrated cement production plant in Matola and four grinding plants in different locations. Cimentos de Moçambique has a cement production capacity of 3.1mn tonnes per year and a workforce of 1,200 people. The company's assets in Nacala include two grinding units and limestone reserves for which it has an extraction licence.



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# Agenda / West

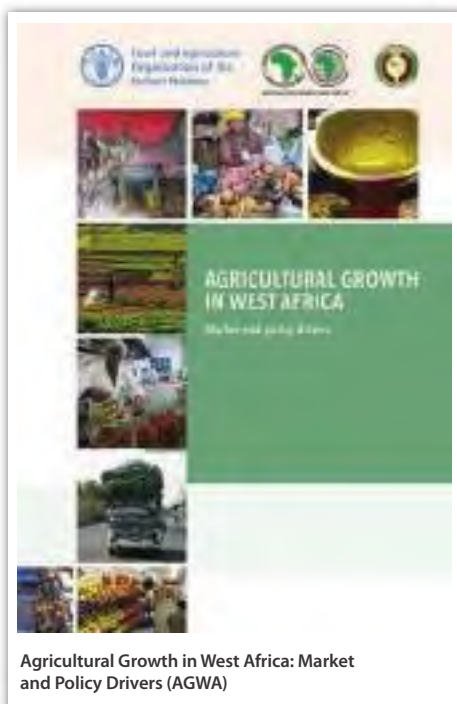
## Opportunities for agricultural growth in ECOWAS states

West Africa has many unprecedented opportunities for agricultural growth, but making the most of them will require more effective regional integration, according to a report - 'Agricultural Growth in West Africa: Market and Policy Drivers' (AGWA) - published by the **African Development Bank (AfDB)**, the **Food and Agriculture Organization of the United Nations (FAO)** and the **Economic Community of West African States (ECOWAS)**.

To be competitive with large global actors, West African agriculture needs to capture some of the economies of scale that those countries enjoy in the markets for fertilisers and seeds as well as in agricultural research and technology development, the report states.

While important progress towards regional integration has been made over the past two decades, effective implementation at national level has remained a challenge, as evidenced by roadblocks and trade bans hindering intraregional trade, along with continued use of disparate national standards for seeds and fertilizers despite regionally agreed-upon common protocols.

Many West African countries have been increasingly relying on food imports to meet their burgeoning urban food markets,



Agricultural Growth in West Africa: Market and Policy Drivers (AGWA)

reflecting the inability of their domestic food value chains to meet the evolving consumer demand in terms of quality, volumes, prices and consistency of supply. The report stresses that while increasing agricultural yields is essential, more attention needs to be placed on the downstream segment of the agrifood system: assembly, storage, processing, wholesaling and retail.

## Pilgrims Group supports maritime security

International security specialist **Pilgrims Group** has improved the provision of safe passage for clients working in West African waters by upgrading a former US Coast Guard cutter.

The vessel, MV The Judge, was acquired by Pilgrims in the USA three years ago and has recently been refitted to install advanced navigation and anti-piracy equipment. Personnel capacity has been expanded to twelve crew members.

Corporate clients, including oil companies, geological surveyors and cable laying experts, have already enjoyed the protection of an armed escort provided by MV The Judge, whose captain, Shane Slabbert, has military experience with the South African Navy. The vessel, which has worked as far afield as Egypt, Somalia and Mombasa, is now based in Lagos, Nigeria, working alongside the Nigerian armed forces, and its area of operations now extends along the West African coast.



MV The Judge vessel has been brought to Lagos for a dedicated offshore maritime role

In relation to the vessel's new West African role, Pilgrims Africa general manager Daniel Revmatas said, "The Judge gives Pilgrims the ability to provide organisations with a complete solution to security provision, both on land and at sea.

"Our sea-borne service, demonstrated by the upgraded abilities of The Judge, provides welcome reassurance in this uncertain environment."

## IFC, Eranove set on Malian energy

Infrastructure project development fund **IFC InfraVentures** and electricity producer **Eranove Group** have signed a concession agreement with the Government of Mali to develop the €110mn (US\$121.9mn) Kenié hydropower project. The 30-year concession agreement covers the development, construction and management of the project. Once operational, the plant is expected to generate 35-56MW of electricity, significantly increasing Mali's current installed capacity, which is slightly more than 400MW. The Kenié plant will be operated through a concession agreement competitively awarded to Kenié Énergies Revouvelables, a new entity owned by the Eranove Group and by IFC. Mamadou Igor Diarra, the Minister of Finance for Mali, said, "The Kenié Hydropower project has been under development for several years and so we appreciate the engagement of IFC InfraVentures, and welcome Eranove as main sponsor to ensure the successful signing of the off-take and concession agreement."



SERIES 2015



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9-10

### Nigeria Defence & Security

Abuja, Nigeria  
www.irn-international.com

12-16

### Electra Mining Africa

Johannesburg, South Africa  
www.electramining.co.za

14-15

### Powering Africa: Nigeria

Abuja, Nigeria  
www.poweringafrica-nigeria.com

15-16

### Cards & Payments East Africa

Nairobi, Kenya  
www.terrapinn.com

15-16

### e Show East Africa

Nairobi, Kenya  
www.terrapinn.com

15-16

### Retail Show East Africa

Nairobi, Kenya  
www.terrapinn.com

15-18

### Bauma ConExpo Africa

Johannesburg, South Africa  
www.bcafrica.com

15-18

### IFAT Forum Africa

Johannesburg, South Africa  
www.ifatforumafrika.com

17-18

### Powering Africa: Ghana

Accra, Ghana  
www.poweringafrica-ghana.com

22-23

### Nigeria Com

Lagos, Nigeria  
nigeria.comworldseries.com

22-24

### AIMA Africa

Addis Ababa, Ethiopia  
www.bciaerospace.com

22-24

### Power, Steel & Housing

Abuja, Nigeria  
www.powerandsteexpo.com

28-30

### South Africa: Gas Options

Cape Town, South Africa  
www.southafrica-gasoptions.com

## EnergyNet events address Africa's increasing demand for power

Africa's demand for power continues to outstrip supply, with some 25 countries in sub-Saharan Africa subject to rolling blackouts. The continent requires sustained support from the global investment community in order to drive social and economic development.

Renowned for hosting the Africa Energy Forum, the longest-running meeting place for senior level decision makers in Africa's power sector, **EnergyNet** also produces the Powering Africa: Series: in-country investment meetings organised with government support and providing a more detailed perspective and country insights.

Powering Africa: Nigeria ([www.poweringafrica-nigeria.com](http://www.poweringafrica-nigeria.com)) is a private sector-led summit taking place from 14-15 September 2015 in Abuja focusing on structured finance, development finance and private equity. The programme will feature interactive dialogue between Gencos and Discos, private sector banks, multilateral investors and DFIs, government and developers.

Powering Africa: Ghana ([www.poweringafrica-ghana.com](http://www.poweringafrica-ghana.com)) will take place from 17-18 September in Accra. This summit will provide a platform for investor insights on the future direction of the power sector. The agenda will focus on the country's electricity landscape following the division of the energy and power ministries and the future project pipeline which is growing under the leadership of the Minister for Power.

Held with the support of the South African IPP Office, the South Africa: Gas Options investment briefing ([www.southafrica-gasoptions.com](http://www.southafrica-gasoptions.com)) will be hosted in Cape Town on 28-30 September 2015, looking at the global gas acquisition potential of South Africa and commercial opportunities for gas and infrastructure developers.

EnergyNet's 4th Africa Infrastructure & Power Forum ([www.africa-infrastructure-forum.com](http://www.africa-infrastructure-forum.com)) is the annual gathering for Chinese investors and African developers to do deals within Africa's infrastructure and power sectors. Taking place from 15-16 October 2015 in Beijing, the Forum will welcome government representatives, utilities companies, financial investors, project developers, technology providers and the advisory sector.

The ninth annual Powering Africa: Finance Options (PA:FO) meeting ([www.poweringafrica-finance.com](http://www.poweringafrica-finance.com)) will return to Cape Town on 5-6 November 2015. PA:FO is a Chatham-House executive briefing designed for CEOs and senior-level directors.

The 3rd annual Powering Africa: Tanzania meeting ([www.poweringafrica-tanzania.com](http://www.poweringafrica-tanzania.com)) from 3-4 December will return to Dar es Salaam to provide detailed insights into the investment opportunities in Tanzania's power sector in 2015.

Visit [www.energynet.co.uk](http://www.energynet.co.uk) or e-mail [amy.offord@energynet.co.uk](mailto:amy.offord@energynet.co.uk)



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# Bulletin / ICT

## MFS accelerates Rwandan financial inclusion

**MTN Rwanda** and **Bank of Kigali** have partnered to improve access to mobile financial services (MFS) by enabling customers to move money between their MTN Mobile Money wallets and their Bank of Kigali accounts and vice versa; all MTN subscribers who are also customers of Bank of Kigali can now have their Mobile Money wallets linked to their bank accounts, meaning that they can pull money from their bank accounts onto their mobile money wallet or push money from their wallets to their bank accounts automatically.

## SA firm makes the grade for Microsoft Office deployment

South African ICT consultancy and systems development specialist **Ukuvuma Solutions** has met stringent criteria to be identified as a **Microsoft** Office365 Deployment Partner, placing it at the forefront of African software migration and implementation; Ukuvuma has the backing of Microsoft not only to sell Office365, but also to assist companies in deploying this globally renowned platform and tailoring it to suite business requirements.

## NBC extends services contract with Jasco

The **Namibian Broadcasting Corporation (NBC)** has signed a three-year service level agreement (SLA) with **Jasco Broadcast Solutions**, extending the original SLA of one year, to cover second-line support across a variety of equipment from studios to final control, ensuring that any issues are resolved within agreed-upon time frames and that all equipment continues to function error-free; over the past five years, Jasco Broadcast Solutions has been instrumental in upgrading legacy infrastructure and solutions at NBC to improve workflow, increase storage and enable integrated management and control of all media assets.

## MainOne marks five years of West African Web innovation

Telecommunications and data services company **MainOne** has celebrated five years of leadership in transforming West Africa's Internet landscape; chief executive officer Funke Opeke noted that, since inception, MainOne' has sought to bridge the digital



L-R: Main One CFO Babatunde Dada, CEO Funke Opeke and GM, corporate services and development, Lynda Madu, mark the company's fifth anniversary in Lagos, Nigeria

divide in West Africa and to become the preferred provider of wholesale Internet services and enabler of online business within the region, by delivering services to seven countries in the region, connecting over 500 telecom operators, ISPs, government agencies, large enterprises, and educational institutions on its network, and establishing interconnections with the **London Internet**

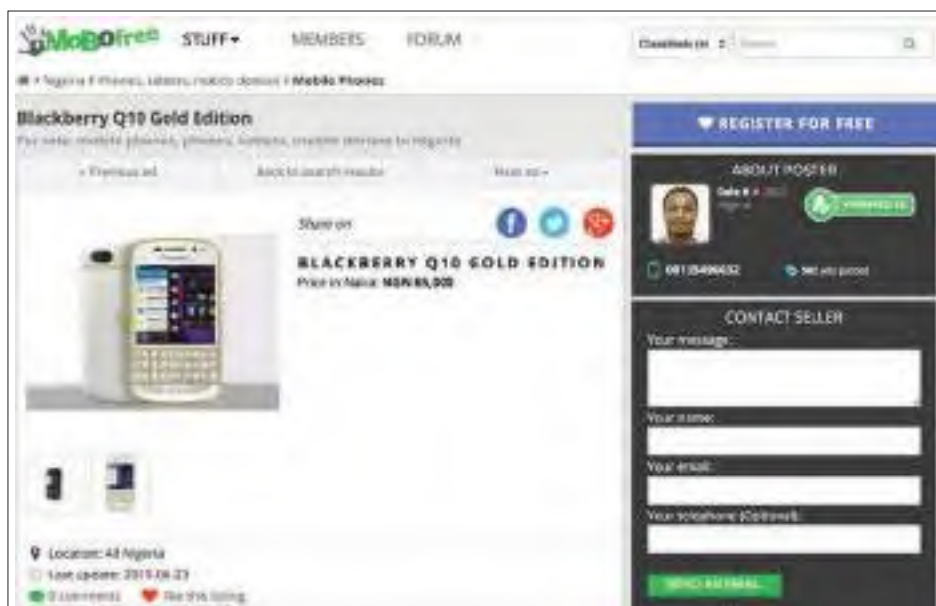
**Exchange (LINX), Amsterdam Internet Exchange (AMIX), Nigerian Internet Exchange (IXPN) and Ghanaian Internet Exchange (GIX).**

## Rwandan tech incubator welcomes new start ups

Technology incubator **think** has taken four entrants on as part of an entrepreneurship programme; think's signature Accelerate initiative offers the opportunity to fast track talented tech entrepreneurs – particularly, African digital companies - to take advantage of intense incubator services in Rwanda by providing space, Internet and business development services.

## MOBOfree introduces ID checks in Nigeria and Uganda

African social marketplace **MOBOfree** has launched an ID verification programme in Nigeria and Uganda, further strengthening its reputation as one of Africa's safest social environments for buyers and sellers alike; "By preventing fraud rather than simply dealing with the issue after fraud has been identified, MOBOfree is highlighting its commitment to a safer environment for e-commerce in Africa," said MOBOfree CEO Cristobal Alonso.



MOBOfree's ID verification programme extends a range of security measures aimed at protecting African consumers

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# Bulletin / Energy

## Building Energy's first Egyptian solar project

A producer of energy from renewable sources, **Building Energy** has signed a memorandum of understanding (MoU) with **New & Renewable Energy Authority (NREA)**, within of the **Ministry of Electricity & Renewable Energy of Egypt**, for two 50MW photovoltaic plants in Benbanm to be built over 12 months from summer 2016, at a cost of US\$200mn; Cornelius Matthes, Building Energy's managing director for the Middle East and North Africa, spoke of the Egyptian government's ambition "to produce at least 20 per cent of its total power from renewable sources by 2020", and its implementation of "a series of concrete steps to facilitate foreign investments, in order to meet the increasing energy needs and support the economic growth of the country".



Cornelius Matthes, Building Energy's managing director for the Middle East and North Africa

## Kohler releases its ready-to-use KDI power unit

Compact size, outstanding power density, low fuel consumption, noise and vibration, and excellent reliability are the distinctive characteristics of the Power Unit line of KDI Diesel engines developed by **Kohler Engines** for the power generation market, and now

expanded with the addition of a new 3.4-litre model; due to its seamless installation, the KDI Power Unit line boasts a compact size and a light weight, particularly advantageous characteristics at all times, over the range 20-60 KVA at 50HZ (1,500rpm) and 20-70KVA at 60HZ (1,800rpm).



## Djibouti commits to energy independence with wind farm

Djiboutian Minister of Energy Ali Mahmoud Yacoub and **Shanghai Electric** vice president Chen Shuyu have signed a memorandum of understanding (MoU) for the construction of a 60MW wind farm, further reinforcing Djibouti's commitment to becoming the first country in Africa to generate all its energy requirements through renewable sources by the next decade; Mr Yacoub said, "Energy demands are high and Djibouti needs cheaper power to fund the expansion of its ports, which have seen a surge in movement of cargo, particularly servicing landlocked neighbour Ethiopia."

## Clarke Energy to distribute Jenbacher engines in Cameroon

**GE's** Distributed Power business is now represented in Cameroon by **Clarke Energy**, which is now distributor of **Jenbacher** gas engines in the country, alongside other Jenbacher products and genuine service parts, with factory warranties and access to expert field service technicians; Jamie Clarke, CEO of Clarke Energy, said, "Access to reliable power is critical for development, and we are here to partner with operators in Cameroon who want to grow their businesses with efficient equipment that is supported around the clock to ensure maximum performance."

## GE marks a decade of safety in Nigerian oil and gas

In Onne, Rivers State, Nigeria, **General Electric** has recorded a significant safety record at its oil and gas facility with no incidents resulting in lost work time for any of the technicians, engineers or other personnel working there; president and CEO of GE Nigeria Dr Lazarus Angbazo said, "This achievement was due to GE's outstanding environmental health and safety standards and all the employees in Onne that make quality and safety an integral part of how they operate on a daily basis."



General Electric Nigeria president and CEO Dr Lazarus Angbazo





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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)

## Industrial hub to be built in Angola

Angolan investment group, Silvestre Tulumbe e Investimentos (STI), which specialises in real estate, car trade, hospitality and the distribution of food and spare parts, has announced plans to develop a US\$350mn industrial hub in Lubango, Angola.

STI CEO Silvestre Tulumbe Kapose said the industrial project would focus on the construction of a brewery, a soft drink plant, dairy products factory, mill and slaughterhouse.

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



Among the facilities to be built in the new industrial hub will be a dairy products factory (Photo: dmitry\_islentev)

## African mobile money market to hit US\$14.27bn by 2020

A recent report by MarketsandMarkets has affirmed that the mobile money market in Africa will grow to US\$14.27bn in the next five years. The report said that the mobile money market in the continent is expected to grow at CAGR of 39.2 per cent for the next five years, growing from US\$2.73bn in 2015 to US\$14.27bn by 2020. Kenya is likely to be the biggest market for mobile money in terms of overall market size, according to the report, while Mozambique, Madagascar, and Malawi are expected to experience increased market traction during the forecast period.

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

## The Big 5 to reach East Africa next year

The organisers of The Big 5 series of construction shows have announced that the first African edition, The Big 5 Construct East Africa, will take place in Nairobi, Kenya, late next year. The Big 5 Dubai and Big 5 Saudi organisers said that the inaugural African event will be held from 2-4 November 2016 at the Kenyatta International Conference Center.



Andy White, vice-president of construction in Middle East and Asia, dmj events (Photo: dmj events)

Andy White, dmj events vice-president for construction Middle East and Asia, said, "The Big 5 brand has grown rapidly in recent years from its established home in Dubai. Our exhibitors are constantly looking for new markets and The Big 5 helps them reach the right buyers in markets where construction is booming."

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

## APR Energy expands power grid in Senegal

Power solutions firm APR Energy has expanded its interim generation capacity for Societe Nationale d'Électricite du Senegal (Senelec), Senegal's national electric utility.

The requirements include installation and operation of an additional 48MW of mobile diesel-powered generation, including assets being redeployed from Libya, to supplement an existing 20MW block of power at its Kounoune site. The contract term for the combined 68MW extends into the Q4 2015.

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

## South Africa named 'key market' for Case

Equipment company Case Construction Equipment will participate in the second edition of Bauma Conexpo Africa. The company will use the event to showcase its entire line of equipment and its solutions for construction businesses in Africa.

The exhibition, which will be held from 15-18 September 2015 at Johannesburg, will host several industry leaders in construction from South Africa and sub-Saharan Africa, enable the exchange of ideas, growth of businesses and networking.



The 821F wheel loader will be on display at Bauma Conexpo Africa in September 2015 (Photo: Case Construction Equipment)

Case, along with its distributor CSE, will showcase its complete range of construction equipment, solutions for construction businesses such as retail financing, expert service support as well as parts backup.

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

## EU to invest in Nigeria's power sector

The European Union (EU) has revealed plans to invest US\$165mn in Nigeria's power sector, in a bid to improve access to electricity in the West African country.

According to an EU representative Peter Cameron, the organisation is keen on investing in the West African nation's energy sector by identifying problems within the sector as well as shortlisting potential projects that could help increase access to electricity. Specifically, Cameron added, solar energy topped the list of energy solutions that the EU was willing to explore.

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





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# Creating commercial advantages for Angola

Profiling the sovereign wealth fund FSDEA, which has nurtured a global reputation amongst investors, governments and other stakeholders

Low oil prices have continued to impact Africa's economies. This has been particularly troubling not only for the Angolan economy but also for institutions such as Fundo Soberano de Angola (FSDEA), a sovereign wealth fund (SWF) wholly owned by the Republic of Angola. But the commitment to socio-economic progress has never been greater. FSDEA's remit remains the diversification of an investment portfolio across an array of industries and asset classes. By pursuing investments that generate long-term and socially enhancing financial returns, the fund plays an important role in promoting Angola's social and economic development and generating wealth for its people.

FSDEA is governed by the Santiago Principles, a voluntary set of principles and practices developed by the International Working Group (IWG) of sovereign wealth funds. The fund is also a full member of the International Forum of Sovereign Wealth Funds (IFSWF). The regulatory and policy milestones achieved by the Fund, combined with the IFSWF membership and SWFI ratings, strengthen the FSDEA's commitment to comply with local and international regulations governing its operations and investment activities. Within the IWG framework, FSDEA has asserted itself as an accountable and transparent organisation with a dedicated social charter to benefit the people of Angola. In fact, the fund has been acknowledged as a transparent fund by the Linaburg-Maduell Transparency Index, which is administered by the Sovereign Wealth Fund Institute (SWFI).

## Creating commercial leaders

The fund has courted international investors aggressively, which has so far paid off. Part of its courtship is a social charter designed to build capacity within the country. Availability of a skilled local workforce is one of the

biggest hurdles to economic growth. In fact, FSDEA graduates highly skilled business leaders through its Future Leaders scholarship programme, which most recently sent 45 of Angola's brightest and best to Zurich, Switzerland, to study at one of the world's leading business schools, the Zurich University of Applied Sciences (ZHAW). Coming from varied academic backgrounds - finance, corporate law, business administration, mathematics and statistics - individuals were selected on the basis of their demonstrated potential to become future business leaders. FSDEA believes that these graduates will go on to innovate new products, create jobs and help to strengthen the country's domestic market. Crucially, it continues to send an incredibly important, positive message to the international investor community - namely, that Angola remains open for business: strong, confident and not swayed by the impact of global uncertainties.

To support the Future Leaders programme, African consultancy Djembe Communications created a fully integrated communications strategy incorporating advertising, brand development, event management, media relations and digital engagement. Its initial 2015 intake, the programme has been a huge success with the top students from the programme being hired by the Fund. The Future Leaders of Angola received positive media attention in pan-regional titles across Africa and in Europe throughout the duration of the programme, and was critically acclaimed by leading Angolan media as a demonstration of the FSDEA's positive impact and role in social development and capacity building.

## Investing in infrastructure

Through 2015 the FSDEA has also been investing US\$1.1bn in a dedicated infrastructure fund that will focus on equity investments in energy, transport and large

industrial developments domestically and across the sub-Saharan African region.

"Commercial infrastructure projects in sub-Saharan Africa currently show unparalleled potential and resilience against the perceived risks associated to our continent. At the FSDEA, we believe that providing the necessary funding for the development of these assets shall enable the overriding goal of diversifying the Fund's investment portfolio sustainably," commented José Filomeno dos Santos, chairman of the board of directors of FSDEA.

The FSDEA also allocated US\$500mn equity capital to a Hotel Fund for Africa, which aims to fulfil the significant undersupply of international standard hotel management capacity in the continent. This vehicle will be in a position to take up debt up to 50 per cent, potentially doubling its total investment capability. With respect to these initiatives in Angolan infrastructure, dos Santos said, "The capitalisation of these vehicles is in line with the FSDEA's policy to invest in sectors that remain shielded from global market volatility and provide sustainable high yield returns on investments that may ultimately preserve capital of the fund for the benefit of the Angolan citizens. Beyond generating solid returns, the rationale behind creating these dedicated investment funds is that the infrastructure and hotel sectors hold substantial potential for job and wealth creation and stimulate local supply chains that positively impact the overall growth of the region's economies."

Supporting FSDEA's efforts towards capitalising funds for Angolan socio-economic growth, FSDEA created a dedicated research unit in 2014 to act as an investment intelligence hub with a particular focus on the Angolan economy. This unit seeks to improve the quantity and quality of research data available on Angola



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and certain sectors of the continent, thereby addressing the challenges faced by academics, policymakers and analysts in interpreting the specificities of the African business landscape. By studying the real foundations of the Angolan economy, FSDEA aims to secure insights to support its domestic investments, assess income and employment generation patterns and understand the true dynamic of an African economy from a local perspective.

FSDEA's research unit consists of eight investment analysts, who work in cooperation with the Angolan Government and specialised academics to generate regular intelligence on macro-economic issues, as well as sector and country specific analysis. This workgroup enables FSDEA, policy makers, government agencies, and international researchers to gain insights into the investment landscape of Angola and the

overall region. On the work of FSDEA's research, dos Santos noted, "There is a scarcity of quality data on Africa in the public domain. So, by securing reliable statistics and analysis of Angola's current investment context, our analysts can deliver valuable insights that enable informed investment decisions. We firmly believe that providing access to more reliable data can be a catalyst for driving sustainable social progress." ■

## Djembe sets out to meet growing demand for communications

Africa's growth metrics are leading the world. According to the *Global Economic Outlook 2015*, Sub-Saharan Africa will continue to experience steady growth at around five per cent annually between 2020 and 2025. McKinsey forecasts consumer spending to grow from US\$860bn in 2008 to US\$1.4tn by 2020, while according to Standard Bank, 14mn new households will join the middle class segment by 2030. In the communications sector the Middle East and Africa saw the biggest surge in advertising spend in 2014, up by 14.6 per cent against 3.2 per cent worldwide, which points to the immense opportunities in Africa right now according to a Nielsen study.

Having a well-established presence in Angola, pan-African consultancy Djembe Communications has now expanded its service offerings into Ghana, Mozambique and Nigeria through wholly owned offices in response to the growing demand in the SSA region for high quality capabilities and services within the public relations and communications sector. Within a short span of time Djembe has acquired an impressive clientele across the sovereign wealth fund, investments, banking and finance, transportation and infrastructure sectors.

"Whilst the African market is very exciting it has to be approached with a deep understanding of both the unique challenges and opportunities across business and cultural landscapes. Djembe's pan-African background, hands-on local capabilities and unparalleled market understanding, backed by our best-in-class teams across key markets enable us to deliver results that are real and measurable for our clients," said Djembe managing director Mitchell Prather.

## Awards and trade relations at Expo TIC

At the 2015 edition of Expo TIC, held at the Luanda International Fair (FIL), Angola Cables was awarded with The Best Participation in Telecommunications award, for the quality of its stand and also for the presentation of the latest projects: SACS and Monet submarine cables.

Parallel to Expo TIC, the Ministry of Telecommunications and Information Technologies held an IT Forum. Angonix project manager Darwin Costa presented on the theme 'The role of the IXP to improving the quality of internet in Angola.'

FIL is a private company, which serves to promote the potential of the Angolan market for its investment opportunities. FIL generates a turnover of more than US\$500mn annually and runs a professional team with many years of experience in the field, offering superior quality assurance in fairs and other potentiating actions for trade relations between domestic and foreign economic agents. FIL also supports the deepening of economic relations between Angola and other nations through engagement with economic development partners. Its events - FIL shows - are sectoral and multi-sectoral fairs, both national and international.

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# Today's institutional Islamic investment

The development and role of Shari'ah-compliant banking operations in Sub-Saharan Africa

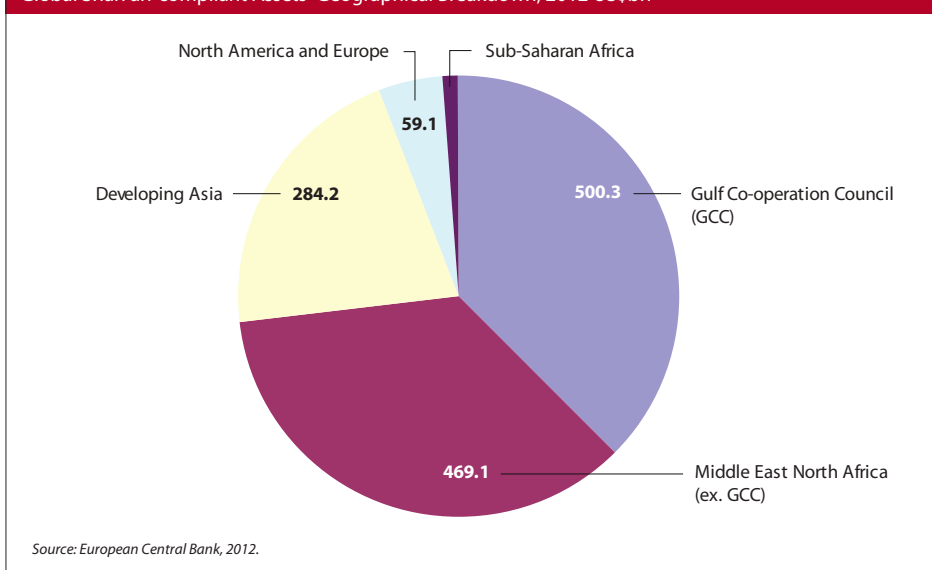
From humble beginnings over five decades ago in rural Egypt as a micro-lending institution, Islamic banking has grown into a global-scale industry, spreading from the Middle East to South-East Asia, sub-Saharan Africa, and Europe and the Americas. Virtually all-major western groups have also embraced Shari'ah finance in some form, whether through subsidiaries (Citi Islamic Investment Bank), special divisions (HSBC Amanah), and Islamic 'windows'. They employ the services of religious scholars, who meet regularly to vet investment decisions and the acceptability of new services.

The niche market for Islamic finance has grown at prodigious rate of 16 per cent annually since 2006. It now boasts some 350 institutions and total assets of about US\$2 trillion - compared to US\$140bn in 2000. The Islamic system is rooted on the principle of ethical and equitable mode of financing - with four underlying pillars: prohibition of interest (riba) and proscribed activities (notably intoxicant, pork, pornography, etc); avoidance of preventable uncertainty (gharar) and ambiguity in contracts and gambling (maysir); ethical values of justice, transparency, and public interest, including risk and profit sharing between involved partners; and a requirement that assets and investments can only derive from, and invested in Shari'ah approved activities, where transactions are backed by tangible assets.

## Distinct characteristics

The Islamic financing differs from conventional banking activities like debt swaps, short selling, collateralised debt obligations, and most derivatives. Popular channels are trade/commodity financing, real estate and leasing. Shari'ah does not permit the creation of debt through direct

Global Shari'ah-compliant Assets Geographical Breakdown, 2012 US\$bn



lending because credit can only be provided through lease or sale-based financing. Moreover, the debt created from lease transactions cannot be sold to a third party. These requirements make the lender bear responsibility for debt financing, thus help prevent excessive risk-taking and debt accumulation.

Money has no intrinsic value but merely serves as 'medium of exchange'. The creation of money, by charging [rent on money] as a reward for waiting is invalid. Money represents 'productive capital' - used for trading real assets and undertaking

ethical businesses - which can then yield legitimate profits and socio-economic gains. Thus, money becomes capital only when mixed with reasonable risks or enterprise. Professor John Presley said "Islamic Banking is all about taking risks and sharing that risk with the client."

The industry has set up global regulatory institutions to guide operations. The Accounting and Auditing Organization for Islamic Financial Institutions (AAOIFI), based in Bahrain, issues standards on accounting, auditing, and corporate governance, while the Islamic Financial Services Board (IFSB), based in Malaysia, oversees overall supervision and regulations.

## Global brand

Although sub-Saharan region hosts large Muslim populations, Shari'ah banking is still undeveloped. The share of Islamic banks (relative to total financial assets) is modest, and Islamic capital markets are virtually non-existent. As of end-2012, about 17 Islamic

Figure: Global Assets of Islamic Banks

Year	US\$bn
2006	480
2007	600
2008	795
2009	820
2010	1050
2011	1200
2012	1550
2013	1700

Source: UKIFS report on Islamic Finance Oct 2013.



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▶ finance institutions - comprising commercial banks, investment banks, and insurance operators - were operating in SSA. Botswana, Kenya, Gambia, Guinea, Liberia, Niger, Nigeria, South Africa, Mauritius, Senegal and Tanzania have Islamic finance activities. There is also scope in Zambia, Uganda, Malawi, Ghana and Ethiopia.

Four countries have considerable potential for becoming a regional hub for Shari'ah-banking:

- In South Africa, the Saudi Arabian-based Dallah Al Baraka group was the first Islamic bank granted a license in 1989 by the central bank; in 2004, WesBank launched an Islamic window, the WesBank Motor Vehicle and Asset Finance, followed by First National Bank with an Islamic window operating in deposits and transactional banking. In 2005, ABSA (now Barclays Africa Group) also launched an Islamic window. Other leading SA Islamic institutions are Stanlib Shari'ah Equity Fund and Element Islamic Equity Fund.
- HSBC Bank Mauritius in 2009 became the first conventional bank offering Shari'ah services. That year, the Bank of Mauritius granted a license to Century Banking

Corporation, making it the Island's first full-fledged Islamic bank. In 2010 India's Tata Group launched the Tata Indian Shari'ah Equity Fund to invest in selective Indian-listed companies. The domiciliation of the fund in Mauritius is the result of the Bank of Mauritius's efforts to position the island as a Shari'ah compliant hub.

- In Kenya, Barclays launched Islamic products in 2005. The sector later expanded with the introduction of two Islamic banks, First Community Bank in 2007 and Gulf African Bank in 2008. Kenya Commercial Bank and Standard Chartered Bank also have special Islamic windows. In 2010, Kenya amended Section 45 of the Central Bank of Kenya Act to allow the Central Bank to recognise the payment of a return rather than interest on government securities, thereby opening up the spectrum of Shari'ah compliant products.
- Bank PHB (Nigeria) was the first bank operating an Islamic banking window in 1992. In 2011, the central bank approved a banking license for Jaiz International Bank, the country's first fully-fledged Islamic bank, which became operational in 2012.

Diamond Bank (along with major Nigerian lenders) is also establishing an Islamic banking window.

#### Pan-African prospects

Shari'ah banking should gradually become more popular in SSA, given huge infrastructure needs, demographic structure and scope for financial deepening. South Africa, Senegal, Gambia, Osun State Government in Nigeria and Cote d'Ivoire has issued Sukuks to finance infrastructure projects.

"The development of Islamic finance in SSA could usefully complement countries' efforts to deepen their conventional financial systems by broadening the range of available options, extend maturities, and facilitate hedging and risk diversification. In addition, Islamic financing can also contribute to the development of small and medium enterprises and microfinance activities," noted the International Monetary Fund (IMF).

Demand for Islamic finance is likely to increase in coming years as the region's total Muslim population is projected to reach 386mn by 2020. ■

*Moin Siddiqi, economist*

## Guide to Shariah-compliant assets

The industry uses a variety of instruments similar to Western-style financing and venture risk capital projects. These include:

- Murabaha is a resale contract, where a bank buys equipment or merchandise on customer's behalf and then sells to latter at a "mark-up" - pegged to the prevailing London Interbank Offered Rates (LIBOR). The transaction is deemed legitimate if charges are for services rendered and not for deferred payments. Pricing depends on credit ratings, transaction size and types of goods being financed. A Bank cannot [re-price] its receivables if LIBOR rises during the contract's duration. Service charge (Jo'alah) is justified because a bank accepts the risk of unforeseeable damage to goods from the time of purchasing and selling to the buyer. This technique confers tax advantages and enables firms to trade without increasing their leverage.
- Musharaka (participating financing), whereby both the financier and borrower jointly contribute funds to brownfield or greenfield project and either one or both may manage the business. Profits (or losses) are shared according to each party's financial contribution. Musharaka - applicable mainly for long-term projects - is the purest form of Shari'ah finance.
- Mudaraba (trust-financing) is a contractual agreement whereby an investor (Rab Al-Maal) entrusts capital to an agent (Mudarib) for managing a project. The former bears 100 per cent risk, whilst Mudarib enjoys autonomy over business decisions. Profits (or losses) are shared between the two parties on pre-arranged ratios.
- Islamic portfolio business is structured on 'Two-Tier Mudaraba', where the bank mobilises savings into either closed or open-ended mutual funds and an Amel (managing trustee) charges fees.
- Ijara Wa-iktina (hire-purchase), where the financier acquires an income-generating project for sole purpose of renting or leasing to clients against agreed rental, together with latter's agreement to make fixed payments into an "Islamic Investment Account," which subsequently leads, as stipulated, to the lessee's purchase (of title) from the lessor. This structure is used in Islamic mortgages and funding of aircrafts, automobiles and vessels (e.g. Emirates Airlines has used Ijara to finance its fleet expansion).
- Istisna (contracts of exchange) is a pre-delivery financing and leasing structured mode. This can be used to finance the manufacturer of plant/equipment or payments to builders during construction stages. A bank provides project finance and takes title upon completion and sells to a third party. Istisna forms an important component of infrastructure projects.
- Sukuks (Islamic bonds) are structured to pay rents or profits in accordance with investors' proportional ownership in tangible assets but not coupon interest rates. They fit well with capital projects that generate cash-flows to cover periodic payments. Malaysia defines Sukuks as "notes or certificates, which represent the value of a particular asset." Sukuks (like conventional bonds) carry maturity dates, coupons and yields - structured on Murabaha or Ijara models. At least half of Sukuks assets must be leased-back



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▶ 'real assets'. The global issuance of Sukuks for 2013 exceeded US\$115bn.

- Takaful (Islamic insurance) literally means "mutual guarantee". It operates on the basis of periodic contributions of funds by policyholders into a collective pool, which is administered by a Takaful company. The latter acts as the manager of entrusted funds responsible for admitting participants, collecting premiums, re-investing in Islamic-compliant assets and paying benefits on General, Life, Health and Pension policies.
- Bal' Salam (forward sales of commodities) represents purchase with

deferred delivery, where a buyer pays the seller the full-negotiated price of a product deliverable at a future date. This instrument only applies to products whose quality and quantity can be fully specified at the time the contract is signed and mostly applies to agricultural or manufactured products. The rate of return depends on cash transaction rather than time dimension.

- Bal' Mua'jjal represents deferred payment sales agreement, where the seller permits a buyer to pay for a product at future prices in either a lump sum or instalments. Fixed price can be same as spot price, or higher/lower than spot price; contract should not include charges for deferring payments.

## Iconic, innovative Islamic finance players awarded

The 9th London Sukuk Summit Awards, held recently at as part of the annual London Sukuk Summit in the UK, once again honoured market players at a time when the proliferation of Sukuk issuances continues unabated, led especially by Sovereigns and corporates, from both traditional and new markets.

The Sukuk Summit theme, 'Globalising Sukuk Beyond Traditional Markets, Structures and Asset Pools', aptly reflected the impressive developments in 2014 and 2015 and highlighted encouraging opportunities for the maturing and sustainable global and domestic Sukuk market, which has also been marked by exciting new innovation in Shari'ah and asset pool structures. The clarion call from speakers and participants is "more of the same, but much more" in terms of Sukuk issuances, size of volume, types of structures and frequency of offerings.

### Developing the market

Indeed, the 2015 London Sukuk Summit Awards, whose main objective is to recognise the outstanding contribution and achievements of individuals, institutions, supra-nationals and financial centres serving the global Islamic financial services industry, especially the proliferating global Sukuk market, could not be more deserving to those recipients who have played their role in helping to further develop the market.

This year's guest speaker was Jerome Cle, a veteran of the mobile payments industry, a serial entrepreneur and Founder & CEO of Rising Sun Merchant Services. Mr Cle highlighted the huge advances made in mobile payments, e-commerce and the use of IT in the financial services industry. Other prominent guests included: Jaseem Ahmed, Secretary General of the Islamic Financial Services Board (IFSB), the prudential and supervisory standard setting board for the global Islamic finance industry; Prof Datuk Rifaat Abdel Karim, CEO of the International



Financial services intermediary DDCAP won two awards at the ICG 9th London Sukuk Summit Awards Ceremony 2015, for Best Shariah Compliant Asset Facilitation Platform and for Best Facilitator of Secondary Market Sukuk Transactions

Islamic Liquidity management Corporation (IILM); Dr Nik Ramlah Mahmood, deputy CEO of the Securities Commission Malaysia, and a bevy of top bankers, lawyers, accountants, business executives and academics.

The 2015 London Sukuk Summit Awards acknowledged a wide-ranging number of deserved recipients honoured in 18 categories from countries. This year's awards commenced with the recognition of four institutions that have contributed invaluable in the field of prudential regulation, liquidity management, capital markets supervision and private sector development.

The Islamic Financial Services Board (IFSB) was honoured with for Excellence for Outstanding Contribution to the Development of Prudential & Supervisory Standards for the Global Islamic Finance Industry. Jaseem Ahmed, secretary general of the IFSB accepted the award on behalf of the IFSB, which - under his watch - has issued seven key standards in recent times including the Core Principles for the Supervision of Islamic Banking and a Guidance note on Quantitative Measures for Liquidity Risk.

Another institution honoured was the International Islamic Liquidity Management Corporation (IILM) for Outstanding Contribution to the Development of International Islamic Liquidity Management Markets. The award was in recognition of the IILM's success in facilitating a global US dollar Shariah-compliant short-term money market for the Islamic financial services industry.

Another institution that is playing a huge role in promoting Islamic finance in the private sector and is also emerging as a major player in advising sovereigns from the developing countries, primarily with a below investment grade rating, to issue Sukuk is the Islamic Corporation for the Development of the Private Sector (ICD), which received an award for Outstanding Contribution to the Development of Islamic Finance in the Private Sector. The ICD was one of the arrangers of the debut Sukuk by Senegal and has since won mandates from the governments of Cote d'Ivoire and Niger to advise them on similar issuances. It is also talking to Senegal, Nigeria, Egypt, Tunisia and Togo on the possibility of future such issuances.



# Advantage India in Nigeria

Confederation of Indian Industry (CII), in association with High Commission of India, Nigeria, and supported by India's Ministry of Commerce and Industry will be organising 'The India Show' in Lagos from 25-27 August 2015. The show is India's effort to promote 'Brand India' in countries and emerging markets with a demand for Indian products and technologies.

With a population of 175mn, Nigeria is Africa's most populous nation and is considered a political and economic powerhouse in the continent. The key US partner is rich in oil, a major trading partner with China, as well as the hub of global business in the region. Nigeria has been among the fastest growing economies in the world in the past decade with an annual average growth of 6.7 per cent.

Throughout the last decade, Nigeria's economy has responded with strong growth between 2003 and 2010, averaging 7.6 per

cent. It is ranked 30th in the world in terms of GDP purchasing power parity (PPP) as of 2013. In the continent, Nigeria continues to be a leading player in the African Union, the New Partnership for Africa's Development (NEPAD), and in the Economic Community of West African States (ECOWAS).

The Nigerian government is working toward developing stronger public-private partnerships for roads, agriculture, and power. Since 2008, the government has begun to show the political will to implement the market-oriented reforms urged by the IMF, such as modernising the banking system, removing subsidies, and resolving regional disputes over the distribution of earnings from the oil industry. GDP rose strongly in 2007-12 because of growth in non-oil sectors and robust global crude oil prices. Then Nigeria's President Jonathan Goodluck established an economic team that includes experienced and reputable members and has announced plans

to increase transparency, diversify economic growth, and improve fiscal management.

## India at its best

India is one of the fastest growing economies in the world and has emerged as a key destination for foreign investors in recent years. The improved efficiency is in the economy and adoption of international best practices in the production of a range of goods and services. A third outcome is India ranking amongst the top ten investment destinations since 2007-08, attracting US\$195bn in FDI and US\$97bn in FII over the past five years.

The Indian government has recently opened up multi-brand retail and civil aviation markets to 51 and 49 per cent FDI respectively and with more reforms expected in insurance and pension sectors, among others, India will continue to offer compelling opportunities to the global investment community, Nigeria in particular. ■

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# Driving new operational efficiencies with IT

Cloud technology creates a competitive advantage, increasing returns on investment and lowering the total cost of ownership

Cloud computing has the potential to deliver significant business benefit by turning IT into an operational cost rather than a capital expense.

The foundation of cutting-edge technologies such as mobility and collaboration, which are essential for competitiveness in today's business world, cloud also helps to simplify offsite disaster recovery (DR), enhance flexibility and scalability of technology, and ensure organisations can leverage the latest and greatest solutions and software updates without additional investment.

All of these benefits combine to deliver improved operational efficiency, allowing for a significant return on investment (ROI), lower total cost of ownership (TCO) of IT and, most importantly, the creation of a competitive advantage.

## Flexibility is key

However, leveraging these benefits to their full extent requires flexible, self-service

IT service provisioning. Making sure this is in place and available is critical to the success of cloud implementations.

Cloud underpins a dynamic infrastructure service, of which flexible IT service provisioning is a vital component. As IT becomes increasingly consumerised and commoditised, self-service provisioning becomes essential in allowing users to fully leverage the flexibility of the cloud.

Self-service provisioning enables customers, or tech-savvy IT administrators, to provision their own virtual machines, as well as increase or decrease processing power and storage as and when required.

It can also be extended to enable customers to provision operating systems or even databases. This is made possible by the virtualised nature of cloud computing, whereby there is no need to go through lengthy procurement cycles to obtain physical hardware or software licenses, as all

components are delivered as a single service, creating a significant competitive advantage, while improving TCO and ROI.

Take, for example, a company that is responding to a market demand for a new service. In order to develop and deliver this service, four new servers may be required.

In order to commission these servers and go through the procurement channels and procedures, it could take up to six months for the servers to be ordered, delivered, configured and operational.

By then, the window of opportunity has probably passed and competitors that make use of IT service provisioning will have already delivered this same service to market.

Furthermore, the compute and storage requirements are usually inflated, as the developers will want to ensure they do not underestimate them.

This entails a hefty price tag and, by the time the project is completed, the capacity and computing power of these servers may not necessarily be fully utilised when absorbed back into the main IT infrastructure.

Something else which is often overlooked is the fact that operating systems become outdated, as does the server technology. What must be considered is the IT cost involved that contributes to the overall cost of the new service.

This is factored into establishing the price of the new service as an indirect cost, resulting in a higher price, which further hinders competitive advantage.

## Staying one step ahead

Flexible, self-service IT provisioning effectively addresses all of these challenges.

The necessary additional servers can be provisioned in a matter of minutes, as opposed to months, allowing an organisation to take immediate advantage of opportunities.

Compute and storage capability can be added exactly to the required specifications,



A J Hartenberg, portfolio manager, data centre services at T Systems in South Africa

as this can be up- or down-scaled dynamically should the estimated requirement be inaccurate.

The cost of the additional capacity is added to the monthly cloud service fee, rather than requiring initial investment, and if it becomes obsolete in the future, this capacity can simply be removed from the virtual services basket.

Server and operating system technology will always be the latest solutions. As a result, organisations are empowered to take advantage of market opportunities quickly, and deliver more cost effective and agile solutions to their end customers.

With flexible self-service provisioning enabled by the cloud, organisations can dynamically scale IT infrastructure in both directions to add or remove servers, applications and other IT resources on demand.

The cloud and virtualisation effectively enable IT infrastructure and services to become commodities, to be consumed as services on demand. In addition, the IT department now becomes an IT service aggregator, rather than its traditional role as a procurement house for technology.

Cloud has become essential in creating a competitive advantage, as profits now rely on how quickly an organisation can get to the customer with services they need to become, and remain, engaged. ■

A J Hartenberg, portfolio manager, data centre services at T Systems (South Africa)





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# An East African integration initiative

Solutions on the table to enable development of key trading corridors to landlocked countries

The East African Community (EAC) and the World Bank have been assessing the challenges and opportunities in improving connectivity along key trading corridors to facilitate regional integration in East Africa. The 2015 Integrated Corridor Development convention, held at the UNESCO headquarters in June, brought together representatives from major bilateral and multi-lateral donor organisations to discuss solutions to facilitate the funding of corridor development in land-locked countries, such as Burundi, Rwanda and Uganda.

## The cost of competitiveness

"In East Africa, high transport costs, poor infrastructure and underdeveloped logistics services limit the competitiveness and inhibit the integration of both the landlocked and

transit countries into the regional and global market. Increasing the integration between the different modes of transport through development corridors can significantly improve connectivity and contribute to higher growth in the region," said Pierre Guislain, senior director for the World Bank's transport and ICT global practice.

The event followed on from the third EAC Heads of State retreat on infrastructure development and financing, held in Kenya in November 2014, where EAC leaders endorsed a strategy and action plan to improve the quality of service, and reduce the costs of transport, through developing better links between the different modes of transport along the key trading corridors of the region. The attendant heads of state underscored their commitment to lead in the implementation of infrastructure

programmes and projects and endorsed the proposed 10-year investment strategy for priority projects, and directed the Council of Ministers to mobilise resources for its implementation. The Council is committed now to holding an annual roundtable for infrastructure investors and financiers in order to mobilise the required resources for infrastructure priorities. The next Infrastructure Retreat will concentrate on civil aviation and airports. The strategy itself, which the EAC Secretariat was tasked to implement, focuses on improving intermodality for freight transport along the Northern and Central Corridors, from the maritime ports to the inland lakes of Victoria and Tanganyika.

"The EAC views the implementation of the Intermodal Strategy projects as a critical input in the reduction of transport costs in the region," said Richard Sezibera, EAC secretary general. "The realisation of a strong EAC Common Market is predicated on the development of efficient infrastructure in the region. Our partnership with the World Bank, therefore, is greatly appreciated."

## Collaboration and acceleration

During the convention, development partners and country representatives presented their institutional priorities, and discussed potential collaboration in accelerating the implementation of development corridor projects such as the Lake Victoria and the Lake Tanganyika transport programmes, which will require a total investment of US\$1.8bn, of which the World Bank has committed US\$850mn to date.

Development partners who participated in the convention included: the European Union (EU), the United Kingdom Department for International Development (DfID), JICA, the African Development Bank, the OPEC Fund for International Development, TradeMark East Africa, and the Development Bank of Southern Africa. ■

The Kampala-Jinja highway as it passes through Mabira Forest (Photo: TradeMark East Africa)





# Work along the new line

Collaboration along the delivery chain is the key to success, as new demands on logistics companies, in terms of technology and as regards customer requirements, are having an effect on the delivery chain. Responding efficiently to these demands is the key. The challenges include transparency and cooperation in the delivery chain, e-commerce, big data and also sustainability.



Grenzebach automates logistics

Cooperation and transparency in the delivery chain is a hot topic. With globalisation, new technology and increasing competition, logistics companies are becoming part of a larger supply chain, operating in networks along with customers, suppliers and cooperation partners. As a result, logistics is continuing to increase in importance - in trade, industry, manufacturing and services.

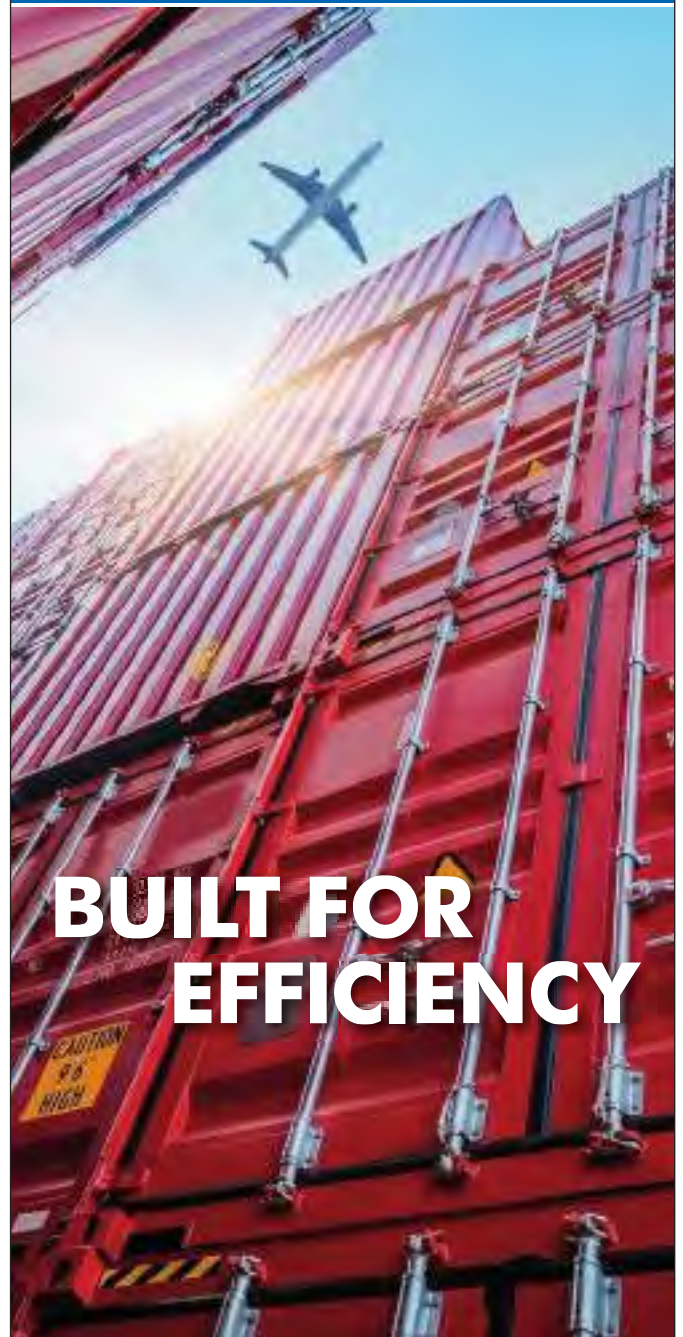
## Digital logistics boosts business in transport

Intelligent information and communication systems are core components in the logistics business: not surprisingly, then, digitalization is a key topic for all logistics companies.

Industry 4.0, 'Big Data', the 'Cloud' and e-commerce are just some of the terms and concepts that logistics professionals are tackling nowadays. In a globalised sector such as logistics, digitalisation offers great potential: for example, through cost-reduction, more flexibility and higher transparency. But it also presents challenges such as data security and communication infrastructure.

The applications being used today fed into the trends that are shaping the market, transforming business values for companies and their customers.

Amongst the enterprises to embrace the new, BLG has been sought to develop contract logistics constantly. BLG boasts around 16,000 employees at over 100 locations in Europe, North and South America, Africa and Asia. For an example of the company's investment in advanced operations, BLG's people point to the Frankfurt Logistics Center in Germany as an example of one of the most modern warehousing and order picking systems in the world. "G-Com" is the name of the highly dynamic and scalable warehousing and order picking system developed by Grenzebach Automation GmbH, which was acknowledged by AKJ Automotive's 'e-logistics award 2015' for the robot-aided intralogistics concept on which it is based. ■



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# The potential for biogas in Africa

The business of renewable energy can be built around the almost limitless opportunities for processing the continent's rich natural resources

When thinking about renewable energy it's common to think of wind power and solar. However there is massive potential in Africa for the utilisation of renewable gas for power generation. Some naturally occurring microbes are able to break down organic material in the absence of oxygen to produce different types of biologically created gas – 'biogas' that consists primarily of methane and carbon dioxide. Renewable energy from biogas has the added benefit of being able to produce a consistent source of power, 'base-load', rather than just when the sun shines or wind blows. It can also be utilised for high efficiency combined heat and power generation – giving a useful source of renewable heating or cooling.

The organic material that is required to produce biogas is available in a wide range of forms on the African continent – some



Africa has vast untapped potential for the production of renewable, decentralised power (Photo: Philip Schedler)

uniquely so. This includes biogas from dumpsites – landfill gas, biogas from human waste – sewage gas, biogas from food wastes or agricultural materials and finally naturally occurring biogas, such as that found in lakes in Rwanda and Cameroon, or some mine sites in South Africa.

Biogas is a gas that is formed by a variety of anaerobic microorganisms. These microbes feed off carbohydrates and fats, producing methane and carbon dioxides as metabolic waste products. This gas can be harnessed by man as a source of sustainable energy. Biogas is considered to be a renewable fuel as it originates from organic material that has been created from atmospheric carbon by plants grown within recent growing seasons. Biogas creation is also called biomethanation. Biologically derived gases are produced as metabolic products of two groups of microorganisms called bacteria and Archaea. These microorganisms feed off carbohydrates, fats and proteins, then through a complex series of reactions including hydrolysis, acetogenesis, acidogenesis and methanogenesis produce biogas comprising of carbon dioxide and methane.

#### Extraction and utilisation

The organic component of household waste consists mainly of food waste and paper. When this is sent to a landfill (an engineered dumpsite) and waste reaches a depth of ~10 metres, is compacted and becomes anaerobic. Under anaerobic conditions the microorganisms which create biogas thrive. If the landfill site is correctly designed and managed the resulting landfill gas can be



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extracted, captured and utilised for power generation. At Bisassar Road in Durban, the gas from the landfill site is extracted and utilised to generate 6.4MW of renewable electricity supplied to the local power grid. In a geographically small country like the UK, Clarke Energy has supplied almost 500MW of landfill gas fuelled power generation equipment.

Food waste from factories or households can be separately collected from other waste streams. The fat and carbohydrate in the waste is a valuable potential source of food for the anaerobic microbes to utilise. An anaerobic digester or biogas plant is a man-made treatment facility for organic material. It typically consists of a reception area, a pre-treatment area to remove contaminants such as paper or plastic, shredders and a series of tanks for the creation of biogas under controlled conditions. As a rule of thumb 20,000 tonnes of food waste per year gives ~1MW of electricity. Elgin Fruit in South Africa utilises the fruit pulp left over in the juice production process as a feedstock for anaerobic digestion with a facility that produces 500kW of renewable electricity. Waste materials from the farming industry can also be used in this manner. Tropical Power's biogas plant near Lake Naivasha in Kenya is able to produce 2.6MW of power from agricultural materials for local utilisation.

In the case of human waste its utilisation for the creation of sewage gas typically relies on the centralised collection of the material through a sewerage system. As human waste has already been digested by a person, a large amount of the carbohydrates and fats have already been utilised. There is also a high water content. This means you need a large amount of human waste to create biogas. Centralised collection and treatment of human

waste has the added benefits of improved sanitation and reduced pollution. If the waste water treatment plant includes anaerobic digesters, the biogas formation processes can be artificially harnessed in order to capture and utilise the gas for power generation. In Marrakesh and Fez in Morocco there are a number of sewage treatment works that process human waste for 5.4MW of renewable electricity.

**Natural potential**

The African continent also has highly unusual, naturally occurring sources of biogas, such as that which occurs in the depths of Lake Kivu in Rwanda and the Democratic Republic of the Congo. This lake produces biogas from the combined actions of anaerobic microorganisms at depth feeding off decaying organic matter, alongside processes associated with geothermal activity. In addition other forms of naturally occurring biogas are present in mine sites in South Africa. Archaea are one group of microorganisms that are able to feed off inorganic compounds in the rocks in mine sites to produce high quality biogas. This gas is typically extracted by ventilations systems but has also been flared to help ensure worker safety, but it can also be used as a valuable source of fuel for power generation.

Aln summary, Africa has vast untapped potential for the utilisation of various different organic and inorganic materials for the production of renewable, decentralised power.

In the coming years biogas will play a significant component in the continent's power generation mix. ■

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# The emerging solar energy economy

Collapsing technology costs and fresh project finance are factors in the next revolution in power generation, storage and distribution

The advantages of solar power in Africa have not been fully exploited



The African continent, whose middle is squarely straddled by the tropics, is blessed with the highest concentration of sunlight in the world. Some 12.96mn sq km of Africa, more than 85 per cent of the continent, receives more than 2,000kWh hours per sq metre per year (kWh/m<sup>2</sup>/y) of incoming solar energy.

This is equivalent to around 49 per cent of the world's solar energy; more than double that of Australia - the second highest receiver - where 6.08mn sq km of its territory receives more than 2,000kWh/m<sup>2</sup>/y of solar energy per year. In the Middle East, 2.59mn sq km of land receives more than 2,000kWh/m<sup>2</sup>/y of solar energy per year; while in Central and South America the land area drops to 1.19mn sq km.

By contrast, in the whole of the European Union (EU), just 23,957sq km of its territory receives more than the requisite 2,000kWh/m<sup>2</sup>/y of solar energy per year - from which it nonetheless

manages to tap more energy from the sun than the entire African continent.

The sheer paucity of solar power installations in Africa means that over the decades the continent has essentially rendered to waste 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 - the equivalent of one incandescent light bulb per person for three hours a day.

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



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### ▶ An electrical revolution

Underpinning this 'electrical revolution' 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. 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.

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 un-electrified sub-Saharan Africans 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 four degrees centigrade has been unveiled. In South Africa, a company has even succeeded in launching solar-powered ATMs for rural areas with intermittent mains power.

### A pipeline of projects

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 155MW, will be one of the top ten largest PV plants in the world when completed. ■

*Nnamdi Anyadike*

## Scatec Solar to build first large-scale solar plant in West Africa

An historic agreement to Build-Own-and Operate West Africa's first utility-scale solar power plant was signed here today by Norwegian company Scatec Solar (<http://www.scatecsolar.com>) and its partners, the Malian Ministry of Energy and Water and Electricité du Mali (EDM), the electricity utility of Mali. To be located near the ancient city of Segou in South-East Mali, 240 kms from Bamako, the 33 MW solar project is being developed in partnership with IFC InfraVentures and the local developer Africa Power 1.

Speaking on the occasion, the Malian Minister of Energy and Water, Mr. Mamadou Frankaly Keita said, "This landmark agreement signals the Government's

commitment to meet the nation's growing energy demand and to provide clean, renewable and affordable energy to our people".

Today's agreements include a Power Purchase Agreement (PPA) between EDM and Segou Solaire SA, the local project company controlled by Scatec Solar, for the delivery of solar power over the next 25 years. The PPA with the utility is complemented by a Concession Contract with the Government of Mali, granting license to Segou Solaire to operate.

With this PPA, Scatec strengthens its position as the leading, integrated solar IPP (Independent Power Producer) in Africa. The Oslo-headquartered company's CEO

Raymond Carlsen said, "This project is another great milestone for Scatec Solar. After several years of development efforts in the region, we can now move forward with the first utility-scale solar plant in West Africa. The Malian Authorities have demonstrated decisive will to tackle the nagging issue of power supply."

Scatec Solar ('SSO') will own 50 percent of the power plant and World Bank's project development fund, IFC InfraVentures will hold 32.5 percent, while the local project development company, Africa Power 1, headed by Dr Ibrahim Togola, will hold 17.5 percent. Scatec Solar will construct the plant, and in addition provide operation and maintenance services after the plant is connected to the grid.

"One of the pillars of the World Bank's Country Assistance Strategy for Mali is to increase access to energy, a development fundamental. IFC InfraVentures' partnership with Scatec Solar and Africa Power 1 helps advance this strategy through Scatec Segou, part of a series of renewable energy projects we are developing in the country," said Alain Ebobisse, Global Head of IFC InfraVentures.

Dr Ibrahim Togola, the chairman of Africa Power 1 SA and General Administrator of Scatec Solar West Africa says: "Today's event is historic because Mali now becomes the first country to install the largest solar grid-connected power plant in the region. This high profile joint-venture in which Malian citizens participate will serve as a model to launch the solar era in West Africa"



Linde's solar power plant in South Africa





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# A vital force for the future

The economic conditions and industrial factors affecting the introduction of renewable energy

As South Africa's embattled energy utility Eskom struggles to keep the country's power supply afloat, the economy is losing billions of rand due to scheduled blackouts (load shedding) intended to relieve the ever-increasing pressure to the grid.

Eskom has cited maintenance to its base load power plants, along with escalating demand, as the main reasons for the crisis. The completion of the Medupi and Kusile power stations, which will become the biggest coal-powered plants in the country, is running four years late, and the projected cost of construction has risen from around R150bn (US\$12bn) to over R320bn. It is foreseen that electricity supply will continue to be highly constrained for at least the next five years as the build programme catches up with demand.

Internal squabbles amongst Eskom's top brass, as well as huge debt and unrecovered municipal bills, have added to the bleak situation, prompting the parastatal to request tariff hikes of up to 25 per cent for 2015/16. The National Energy Regulator of South Africa (NERSA) approved a 12.69 per cent increase, but this is unlikely to raise Eskom from what is looking like a deepening black hole.

In the face of this predicament, it has become more important than ever for South Africa to focus on using renewable energy to supplement power supply. The government's Renewable Energy Independent Power Producer Procurement (REIPPP) programme, currently in its fourth bidding window, is surging ahead with a number of wind, solar, biomass and hydro projects, and 37 projects have been connected to the grid to date. The bidding rounds attracted a wide variety of domestic and international interest, and have successfully channelled substantial private sector expertise and investment in renewable energy, at competitive prices.

To alleviate the electrical energy shortfall South Africa is facing, the National Department of Energy (DoE) has expanded and accelerated their IPPP programme. A public commitment by the Minister of Energy indicated that a total of 17,000MW new operational capacity from renewable energy, coal, gas and cogeneration will be targeted over the next seven years.



Large energy intensive users still require supplemental energy supply overnight

**“ Household solar together with local battery storage is the way forward in most economies in Africa ”**

Although coal will continue to be the main energy source for the foreseeable future, the long-term goal is to have renewables supplying 19 per cent of South Africa's electricity (17,800MW) by 2030, a target which the country's Department of Energy (DoE) says is well within reach. To date, the IPPPP has successfully procured 6,327MW in Bid Window. By end March 2015, 1,827MW of the procured capacity had already started operations (including two projects in early operations). In terms of national targets, this represents 10 per cent towards the 2030 target and 25 per cent towards the 2020 target," the Department's media desk said in response to enquiries.

#### Programming for the power environment

It has been widely recognised that South Africa's potential for producing renewable energy is massive.

The United Nations Environment Programme ranked the country among the top ten renewable energy investing countries in the world for 2014 in its March 2015 Global Trends in Renewable Energy Investment publication. The World Wildlife Fund also lauded the project in a recent assessment, describing it as "a flagship public-private partnership model for South Africa, and indeed the rest of Africa, and is helping alleviate Eskom's current power crisis while also reducing greenhouse gas emissions".

The first wind and solar IPP projects have reportedly saved the country more than R3.7bn in diesel and fuel costs, while 120 hours of unreserved energy has saved an additional R1.6bn.

"In 2014, the renewable energy REIPPP already generated net financial benefits of R800mn. This amount is expected to increase sharply as more projects become operational and supply electricity to the energy grid," said the DoE.

However, while the REIPPP is alleviating South Africa's insufficient electricity generation capacity, in isolation, renewable sources will not be enough to ensure the sustainability and reliability of electricity generation and supply.

"Therefore, the programme has been extended to also include the procurement electricity from coal, cogeneration and gas sources. In combination, it is this mix of electrical power provision by the private sector that will solve South Africa's electrical energy crisis," the DoE observed.

Along with the massive scope of the programme comes several risk factors, including investor confidence and alignment between generation and transmission planning. According to the DoE, "High renewable energy potential zones are not necessarily aligned with existing grid networks. In the case of South Africa, the alignment between generation and transmission planning and implementation remains an issue".



➤ The design of the IPPPP as a rolling competitive bid window programme established market confidence early on. But to maintain this confidence, investors require an enabling investment environment and a line of sight into the roll-out of the procurement programme.

“Certainty on grid connections and continuous improvements through lesson learning from previous bid windows are some of the key issues for minimising investor uncertainty,” the DoE said.

Energy analyst Chris Yelland refers to the programme as one of the biggest of its kind in the world, and is a positive example of the influence private sector investment can have.

“Driven by government, the programme has brought in enormous expertise and capital from the private sector, at no burden to the taxpayer. IPPs are bringing in 15 times more renewable energy than Eskom, and this proves the power of multiple projects running parallel to each other, rather than relying on one vertically-integrated monopoly,” Yelland explained. He further emphasised the importance of moving away from coal as the primary source of energy, but warns that renewable energy is not a silver bullet,” Yelland pointed out. “Coal isn’t going away anytime soon, and we mustn’t look to renewable as a magical solution. But there is a need to diversify to other sources, which are abundant. The programme has been very effective in doing this, with projects being completed on time and to budget.”

There are however several critics of the programme, such as energy consultant Ted Blom, who believes that restrictive regulations on household-generated solar power have hampered the progress of renewable energy provision.

“Since the start of the REIPPP process, independent household solar has become far more affordable, and current calculations indicate that if allowed, between 8-10GW of new renewable solar could be added to



Technological breakthroughs have removed the hurdles from self-generation via renewables

the grid in under 12 months. If implemented equitably, this would generate a return of around 20 per cent per year for households,” Blom said. He adds that, in a largely sunny country such as South Africa, household solar could generate meaningful cash flow to the poor and unemployed, especially with the advent of technological breakthroughs that allow self-generation.

“Household solar together with local battery storage is the way forward in most economies in Africa - and it will break the stranglehold most electricity utilities have had on adequate and cheap supply to households,” Blom noted. ■

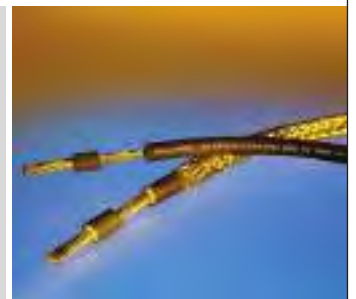
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# Côte d'Ivoire's new energy capabilities

The inauguration of the third and final phase of the Azito power plant marks a milestone in West African economic development

In 1996, with discoveries of oil and gas in Côte d'Ivoire's offshore waters and the emergence of new infrastructure financing models, the Ivorian government sought to attract the private sector to increase electricity generation. An international tender was launched for this purpose, and the state established a private company, Azito Energie (formerly called Cinergy) in a concession agreement for the financing, construction and operation of a new power plant. Fuelled by natural gas, a location at Azito was selected in the Yopougon district – about 5km from the centre of the Ivorian commercial capital, Abidjan. As the director general of Azito Energie, Luc Ayé, explained to African Review, the objectives were threefold.

"The plant was designed principally to meet the country's growing electricity demand; to use the natural resources of Côte d'Ivoire's offshore reserves; and to position the Côte's d'Ivoire as electricity exporting country in the West Africa sub-region," he says.

Azito Energie was established as an independent power producer (IPP) with a mission to utilise natural gas to generate electricity. Since 2000, it generated 300MW operating two combustion turbines. But the recent inauguration of a new steam unit will substantially increase that production.

"All the energy we produce is made available to the state utility company, the Ivorian Electricity Company that transports and distributes it to customers through their grid," Ayé explained. "Our company's shareholders include Globeleq (a subsidiary of CDC), and the Ivorian industrial group IPS WA (a subsidiary of the Aga Khan Fund for Economic Development, AKFED)."

Ayé's background includes several years of experience in the development of similar projects in the sub-region with the industrial group IPS West Africa, and the co-ordination of privatisation projects in public administration, in particular the Ministry of Economic Infrastructure.

"After an engineering training program in mechanical engineering in Europe, I had the opportunity at the beginning of my professional career to be associated with this important infrastructure project, one of the first infrastructure projects in Africa to benefit from an entirely private 'build, own and operate' (BOO) funding structure involving no state backing," he said. "I have had the privilege and responsibility to lead Azito Energie since 2007."

Before the first electricity was generated, or even the first steps were taken to build the power station, Ayé says the project faced considerable challenges.

"Before talking about the operational stage, I would first like to revisit a crucial step, which was decisive for the implementation of this project. This was the design and contractual structuring of the project," he says. "In fact it was necessary to establish a new framework to govern the relationship between the state, the private concessionaires



With a 50 per cent increase of Côte d'Ivoire's annual electricity production, the country will have more than 3,000GWh available by 2016

responsible for managing the electricity service, the independent power producers, and donors involved in financing," he adds. "The implementation of this type of BOO contract was unknown at that time, and the viability of the project required an adaptation of the institutional and regulatory legislation, particularly regarding the transparency and management of financial flows to the sector, the setting up of a specific tax and customs arrangements, etc. – measures that were sometimes at odds with all the different actors, but were made possible thanks to a strong political will."

In short, it was not always easy to introduce the framework and conditions conducive to private sector involvement.

Having achieved that part of the project's development, Ayé encountered a new set of tests. "In the operational phase our challenges were, and still are, to maintain a high level of reliability and the optimum performance of our facilities to meet the needs of the utility company to fulfil our contractual obligations.

"Besides a rigorous daily maintenance programme, we also carry out regular inspections and major revisions to the main equipment in agreement with our principle subcontractor Alstom of Switzerland."

Between 2000 and 2010, Ayé explains, little investment had been made in the power sector due to the conflict that the country endured. But from 2011, the government restored the confidence of private investors and reinvigorated the sector with vigorous proactive policies. Ayé put it this way: "We had the obligation to produce electricity, but we also needed to guarantee to our investors that we could secure the payment by the local utility for the electricity we were generating." ■

Stephen Williams



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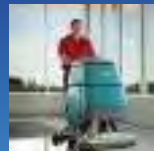
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# The underdeveloped energy industry

The continent's capacity for electricity generation lags behind the soaring increases in demand

It is an unquestionable fact that sub-Saharan Africa is starved for electricity and the consequences for the region's economic growth are grave. A recent report into Africa's electricity sector by McKinsey & Company - the American management consulting firm - reported that, from an electricity-access point of view, sub-Saharan Africa's situation is the world's worst. The region has 13 per cent of the world's population, but 48 per cent of the share of the global population without access to electricity. The only other region with a similar imbalance is South Asia, with 23 per cent of the world's population and 34 per cent of the people without access to electricity.

## Developing industry infrastructure

However, Africa's power sector troubles are also compounded, says McKinsey, by the fact that the underdevelopment is spread right across energy access, installed capacity and overall consumption. And because of the direct correlation between economic growth and electricity supply much of the region, despite an abundance of raw material resources, is yet to fulfill its development promise.

Only seven countries - Cameroon, Côte d'Ivoire, Gabon, Ghana, Namibia, Senegal and South Africa - have electricity access rates exceeding 50 per cent. The rest of the region has an average grid access rate of just 20 per cent. The only countries that have electrification rates of less than 80 per cent with GDP per capita greater than US\$3,500 are those with significant wealth in natural resources - such as Angola, Botswana, and Gabon. However, even these countries fall well short of economic prosperity.

Average electricity consumption in sub-Saharan Africa, excluding South Africa, is only about 150 kilowatt-hours per capita - a fraction of consumption rates in Brazil,

India, and South Africa. So with almost 600 million people in sub-Saharan Africa lacking access to electricity the task of electrifying the region is truly enormous.

But there is room for optimism in the longer term. Demand is rising and the outlook, based on a demand-driven approach, is that by 2040 sub-Saharan Africa will consume nearly 1,600 terawatt hours, four times what was used in 2010. This forecast by McKinsey is predicated on a fivefold increase in GDP; a doubling of population; electricity-access levels reaching more than 70 per cent; and increased urbanisation. If this trend is indeed borne out then sub-Saharan Africa will consume as much electricity by 2040 as India and Latin America combined did in 2010.

Satisfying this level of demand though will be extremely challenging. And the likelihood is that electrification levels in the region will only reach 70 to 80 percent by 2040. McKinsey's research found that it takes on average 25 years to progress from a 20 percent electrification rate to 80 per cent electrification rate.

Nonetheless, sub-Saharan Africa is well endowed with natural resources for future power generation. Excluding solar, the estimate is of a potential 1.2 terawatts of capacity. But when solar is included this potential capacity leaps to a staggering 10 terawatts or more.

There is also a potential for about 400 gigawatts of gas-generated power, with Mozambique, Nigeria, and Tanzania alone representing 60 per cent of the total capacity.

Hydro power can supply about 350 gigawatts of hydro with 50 per cent coming from the Democratic Republic of the Congo (DRC). The massive Grand Inga 40 gigawatt hydroelectric project in the DRC - if it were to happen - would be the largest infrastructure project in history and with

the ability to deliver more than 200 terawatt-hours of electricity. This is the equivalent of 13 per cent of all of sub-Saharan Africa's total power demand by 2040. No one is sure exactly how much it will cost, but the estimate accepted by McKinsey is about US\$80bn, comprising roughly US\$40bn for generation and US\$40bn for transmission.

Promisingly, there are now moves to expand the sub-continent's hydro capacity into the Sahel region. In June, the Eranove Group - a major pan-African player in the electricity and water sectors - signed a 30-year concession agreement with the government of the Republic of Mali through its subsidiary Kenié Energie Renouvelable.

Under the terms of the agreement, the group will finance, develop, build and operate the Kenié hydro-electric dam located in Baguinéda on the Niger River, 35 km east of the capital Bamako. Construction is due to begin in 2016 and the dam is scheduled to be in operation by 2020.

This development is an important one for power-hungry Mali. According to World Bank estimates, the country's current installed power capacity of approximately 414MW covers only half of potential demand. Initial simulations suggest that the Kenié dam could produce around 175GWh, which is equivalent to the average annual consumption of 175,000 households.

Marc Albérola, CEO of the Eranove Group said, "As part of the regional integration of power transmission networks, hydro-electricity can play a key role in increasing power generation capacity. And we mustn't forget micro and pico hydro-electricity either. These small hydro-electric facilities can supply power to villages or groups of villages in remote areas far away from interconnected transmission systems." ■

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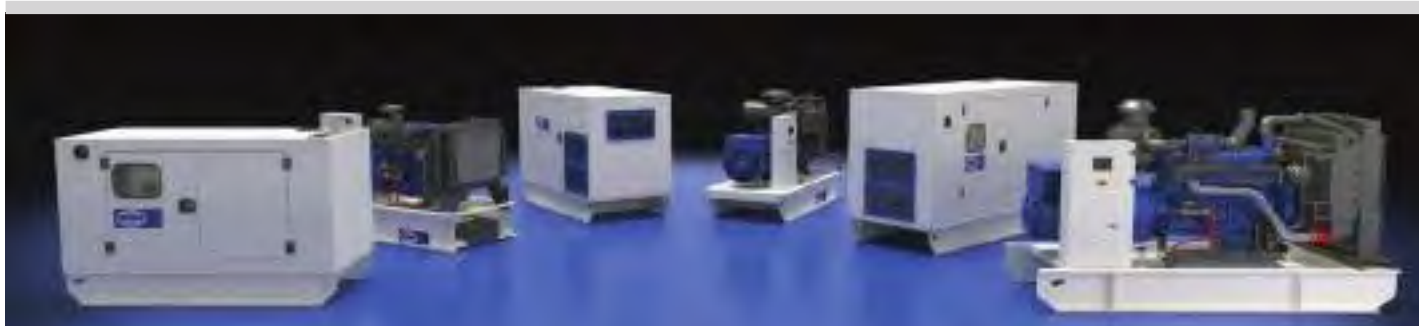


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# FG Wilson's model for network expansion

Chinese dealer network grows following the introduction of the new F Model range of generator sets



Less than a year since FG Wilson launched its hugely-successful F Model range, the leading global manufacturer of diesel and gas generator sets will be expanding the range further throughout the next 18 months.

The 32–125kVA range of generator sets, which complements the existing suite of FG Wilson product ranges, has proved extremely popular with customers across the world with its design providing a more diverse and competitive product offering across multiple customer segments such as domestic, retail and industrial.

## Meeting the market with quality models

Uncompromising on quality, availability and expert local support, these models deliver uncomplicated power assurance with the quality excellence which the world has come to expect from FG Wilson. Until recently the 32–125kVA range had only been available in 50Hz but customers are now able to be purchase this range in 60Hz also.

Plans are also advanced for the launch of the F Model range in a number of different sizes – both smaller and larger – to meet the rising demand for the product in countries such as China, Brazil, Russia and Africa. Over the next 18 months the range will become available in 9.5-22kVA, 150-165kVA, 200-220kVA, 275kVA, and 340-390kVA.

An exclusive feature of the F Model range which has been an important factor in its success during the first year on the market is the introduction of the FG Wilson engines to the proven and trusted FG Wilson generator

set core design. Coupled with robust, world-renowned components, the F models deliver a high quality, ready-to-run product that meets industry standards for the value-utility market.

## Dealers in new business

Running in tandem with the successful launch of the F Model range has been the growth of FG Wilson's official dealer network across China. During 2014 FG Wilson expanded its dealer network in China with the recruitment of five high-quality companies which has improved its reach across four key provinces – Shandong, Jiangsu, Hunan and Sichuan. These new dealers will work alongside one of the most long-standing dealers in the region, FG Wilson Hong Kong, who have been providing high-quality diesel and gas generator sets as well as expert advice and specialist technical support to Hong Kong, China, Macau and Taiwan since 1991.

Dealer recruitment is ongoing and we are engaging with a number of firms with a proven pedigree to establish new dealers in areas including Jiangsu, Anhui, Fujian, Jiangxi, Hubei, Henan, Hainan, Guizhou, Yunnan, Gansu, Shanxi, Inner Mongolia, Jilin, Helongjiang, and Ningxia.

Neil McDougall, Retail Global Sales Director, commented, "FG Wilson is continually searching for opportunities to consolidate our position as the leading global manufacturer of diesel and gas generator sets. The expansion of our dealer network in China and the

upcoming launches of our ever-popular F model range in a number of new sizes are very tangible examples of FG Wilson ensuring all of our customers' needs are fully met.

"The F Model product range has delivered on our promise of providing performance, serviceability and durability with a FG Wilson engine and a simplified choice of options. The forthcoming introductions of the new F model sizes will allow us to compete in even more new markets and broaden our customer base further.

"Such new product introductions are part of Caterpillar's strategic plans to position FG Wilson as the volume brand within its Electric Power Division for all diesel and gas generator sets from 6.8-750kVA.

"The expansion of our dealer network in China comes just six years after the relocation of FG Wilson's Asia Power Systems (APS) to a 28,000m<sup>2</sup> world class facility in Tianjin, purpose built to fulfil increasing demand. Highlighting our policy of continued investment in our world-class manufacturing facilities across the globe, the APS plant in China is one of the main source plants for the recently-opened Product Distribution Centre (PDC), located at Antwerp, Belgium."

With manufacturing plants located in the UK, Brazil, China, India and the USA, FG Wilson's 'One Global Standard' guarantee ensures that every one of its generator sets is designed and manufactured to the same global standard. ■

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# Volvo's African expansion

The Swedish manufacturer of construction machinery is looking to conquer the market in a continent full of potential



The new L120Gz in action - the G series is designed primarily for application in quarries and mines. (Photo: Volvo CE)

**V**olvo Construction Equipment (Volvo CE) is one of the largest manufacturers of construction machinery in the world.

The company's status as a premium brand has traditionally made Europe and North America its biggest markets, but the relative slow-down in the construction sector in these heartlands, combined with the proliferation of infrastructure projects across the emerging markets has led it to turn its attention to the potential of areas like the Middle East and Africa.

While construction in the former has been more explosive and immediate, the sector on the African continent is set to grow more steadily.

"Africa continues to be important to Volvo CE in the long-term," says Johan Haglund, Volvo CE's vice president Hub South (Africa). "We don't expect the market to take off 'like a hockey stick', but we expect long-term continuous growth."

Mining and energy firms continue to drive the demand for infrastructure across the

region, with business research group BMI recently predicting the continued proliferation of industrial facilities, particularly in coastal regions.

"We find that South Africa and Algeria are the biggest purchasers of construction equipment," says Haglund, confirming that "in South Africa our machinery is mainly used for coal and hard rock mining, whereas in Algeria, road machinery and excavators are especially popular for infrastructure projects."

Haglund says Volvo CE's sales in Africa therefore centre on three main pieces of machinery; excavators, wheel loaders and articulated haulers.

## Wheel Loaders

"As a percentage of the global construction equipment market, value brands have gradually been growing towards 70 per cent of the total world market, while you can see the percentage and proportion of the premium brands has been gradually decreasing," explains Tomas Kuta, president of

Volvo CE for the EMEA (Europe-Middle East-Africa) region. "That's a trend we see developing basically everywhere; to a lesser extent in some of the more mature markets but definitely extreme development in many of the emerging markets - particularly in Africa."

With this in mind, the company recently released a new range of wheel loaders, designed specifically for the region; the 'G-series'.

Volvo say the three new models, the L60Gz, L90Gz and L120Gz, are tailored to increase productivity in the most demanding conditions, featuring load-sensing hydraulics, a powerful and durable Z-bar linkage and a well-matched powertrain.

"Our research has shown that a significant number of African customers are using the wheel loaders with the bucket only, often fitted at the factory, so they don't require the flexibility of the TP linkage," Haglund explains. "The Z-bar linkage offers a higher breakout force when using buckets and because of this



➤ it will be better optimized for African working conditions.”

The G-series machines also have the same transmission, engine and axels used in Volvo's other wheel loaders, such as the F Series, but with certain other aspects of the specification made optional in order to minimize the base cost.

As well as their application in mines and quarries, Volvo said the G Series machines are ideal for use in cement factories – another growth industry for Africa, where the expansion of the construction sector is feeding a growing demand for building materials.

### Articulated Haulers

Volvo's range of highly adaptable articulated haulers are well-suited to both construction and mining, and so, are popular across the continent – particularly the A35 model which is a favourite in South Africa.

The machines are produced at the company's factory in Braås – dubbed “the home of articulated haulers” by site manager Jörgen Sjöstrand – where more than 72,000 units of various designs have been produced since 1966.

The haulers have a robotically-welded, heavy-duty frame, which is shot blasted with steel pellets rather than sand to reduce the need for after welding, providing additional strength and durability.

The frames have a high ground clearance and multiple oil-cooled disc breaks on all three axles, making them ideal for off-road applications, and all models come equipped with hydro-mechanical steering for precise turning and maneuverability.

The haulers can also be fitted with a number of optional extras to better adapt them to one or more of Africa's wide range of extreme environments.

“Each country, or at least



Robotic welding at Volvo's Braås plant.  
(Photo: Volvo CE)

each region has it's own standard package, and then it can vary a bit,” explains Par-Olof Gaard, Volvo's articulated hauler product manager.

Machines destined for Volvo's second largest African market Algeria, for example, can be fitted with an oil bath air cleaner to filter out sand more effectively – a popular addition for the MENA (Middle East & North Africa) region.

Customers also have the choice of two different tyre types, for hard and soft ground, by four different brands; Bridgestone, Michelin, Goodyear and Yokohama.

“It's very important to choose the right tires for sand,” Gaard explains. “You need floatation rather than traction in sand.”

### Excavators

When it comes to excavators, Volvo offers a multitude in a number of varieties – wheeled, compact and crawler – for the African market.

In South Africa, Haglund says the largest models, such as the EC 480E and the EC 700C, are especially popular with mining contractors due to their strength, power and durability.

The EC 700C has a powerful 458hp D16E engine for high torque, even at low RPMs, as well as high breakout force, crowding forces and slew speed.

The EC 480E has a D13 Stage IV/Tier 4 Final engine and a reinforced three-piece undercarriage with a X-shaped frame made from high-strength tensile steel for a long life and high uptime.

Volvo say both models come equipped with advanced hydraulics systems for high digging capacity, allowing for increased productivity as well as fuel economy.

### African conquest

So how does Volvo CE see the African market evolving, and how does the company plan to meet the challenges that conquering it poses?

“South Africa and Algeria are likely to remain the largest markets,” says Haglund, “but Nigeria will also grow in importance. We also see a lot of growth in Egypt and the East African markets.”

Articulated hauler product manager Gaard is also keen to point to the many other countries which Volvo has yet to crack, expanding into which is “absolutely” a key part of the company's African, and indeed global strategy.

“There are also many potentially big markets where we currently don't sell much, but which have huge potential,” says Gaard. “As it's a fairly new concept, it takes some time for it to settle like it once did in many other countries.”

So how does Volvo plan to go about its planned expansion?

“Our strategy is to continue to build our distribution using multi-country dealers, in many cases together with our sister company Volvo Trucks,” explains Haglund. “By creating this critical mass for dealer investments, we also enable good coverage in smaller markets.” ■



Par-Olof Gaard and Jörgen Sjöstrand  
with an articulated hauler.

# Construction & Mining Buyers' Guide

## Section One: Listings by Category

### Section Two: Suppliers

### Section Three: Agents & Subsidiaries in Africa

Please mention African Review when contacting your supplier

## Section One: Listings by Category

### AIR COMPRESSORS

Coelmo SpA  
Doosan Portable Power  
(Doosan Benelux SA)  
Voith Turbo (Pty) Ltd.

#### Diesel Driven

Aggreko  
Atlas Copco Portable Energy  
Division  
Doosan Portable Power  
(Doosan Benelux SA)  
MAN Truck & Bus AG  
Yellogen Ltd.

#### Electric

Altaaqa Global CAT Rental  
Power  
Atlas Copco Portable Energy  
Division  
DHYBRID Power Systems  
GmbH  
HELUKABEL South Africa (Pty)  
Ltd.  
HIMOINSA  
Kohler Power Systems  
Lovato Electric S.p.A.  
Marelli Motori S.p.A.  
Pr Industrial S.r.l.

### AIR CONDITIONING

KTI - Plersch Kaltetechnik  
GmbH

### BUILDINGS

Cavatorta France SAS  
CONMIX Ltd.  
Kirkoskar Brothers Ltd.  
KwikBuild (Pty) Ltd.  
MERLO S.p.A.  
Topcon Positioning Middle  
East and Africa FZE  
Weiler GmbH  
Zamil Steel Building Co. Egypt

### CERAMIC AND HEAVY CLAY MACHINERY

ACIMAC-Association of Italian  
Manufacturers of Machinery  
and Equipment for Ceramics  
ANIVI Ingegneria SA  
MECCANICA 2P S.r.l.

### COMPONENTS AND SPARE PARTS

Babacan Rubber Industry  
C.C.JENSEN AS  
Cat Lift Trucks  
DEM Group  
ELB Equipment  
ERLAU AG  
Filtration Ltd.  
habermann materials GmbH  
IREM S.p.A. a socio unico  
Jungheinrich AG  
Kirkoskar Oil Engines Ltd.  
Kohler Power Systems  
Maitek S.r.l.  
MAN Truck & Bus AG  
Marelli Motori S.p.A.

MECCANICA 2P S.r.l.  
Pr Industrial S.r.l.  
Rossi S.p.A.  
Shandong Shantui  
Construction Machinery  
Import & Export Co. Ltd.  
SMT Group  
Spare Power  
Trading (Pty) Ltd.  
Specialinsert S.r.l.  
Wear and Spare Parts

### CONCRETE EQUIPMENT

Amog S.r.l.  
ANIVI Ingegneria SA  
Bobcat (Doosan Benelux SA)  
Elkon Concrete Batching  
Plants  
HawkeyePedershaab  
HMD Africa (Offshore)  
Kraft Tool Co.  
KTI - Plersch Kaltetechnik  
GmbH  
Liebherr- Export AG  
Meka Crushing & Concrete  
Batching Technology  
MERLO S.p.A.  
Parker Plant Ltd.  
Shandong Shantui  
Construction Machinery  
Import & Export Co. Ltd.  
Spiroll Precast Services Ltd.  
SRS Finlay  
Trelawny SPT Ltd.  
Vortex Hydra S.r.l.  
Wacker Neuson (Pty) Ltd.  
Weiler GmbH

#### Batching Plant

Carmix - Metalgalante S.p.A.  
Elkon Concrete Batching  
Plants  
Ermont SAS / Marini-Ermont  
Fiori Group S.p.A.  
habermann materials GmbH  
HMD Africa (Offshore)  
Jessop & Associates (Pty) Ltd.  
LINTEC GmbH & Co. KG  
Marini S.p.A.  
Meka Crushing & Concrete  
Batching Technology  
Voith Turbo (Pty) Ltd.  
Vortex Hydra S.r.l.  
Weiler GmbH

#### Block/Tile- Making Equipment

Jessop & Associates (Pty) Ltd.  
MECCANICA 2P S.r.l.  
Ormonde Machinery Ltd.  
SRS Finlay  
Vortex Hydra S.r.l.

#### Breakers

Bobcat (Doosan Benelux SA)  
ELB Equipment  
Fritsch GmbH Milling and  
Sizing  
HMD Africa (Offshore)  
Indeco Ind S.p.A.  
Jubaili Bros  
Lovato Electric S.p.A.

Soosan Heavy Industries Co. Ltd.  
Wacker Neuson (Pty) Ltd.

#### Concrete Pumps

Elkon Concrete Batching  
Plants  
HMD Africa (Offshore)  
Kirkoskar Brothers Ltd.  
RATEC GmbH  
Wonder Moldplast Pvt. Ltd.

#### Formwork

Agria Machinery Services & Co.  
Ltd.  
Doka Industries GmbH  
Form - Scaff  
HMD Africa (Offshore)  
RATEC GmbH  
Wonder Moldplast Pvt. Ltd.

#### Mobile Mixing Plant

ANIVI Ingegneria SA  
Bobcat (Doosan Benelux SA)  
Carmix - Metalgalante S.p.A.  
Elkon Concrete Batching  
Plants  
Ermont SAS / Marini-Ermont  
Fiori Group S.p.A.  
HMD Africa (Offshore)  
LINTEC GmbH & Co. KG  
Marini S.p.A.

#### Pipe Making Equipment

Dowson & Dobson Industrial  
habermann materials GmbH  
HawkeyePedershaab

#### Recycling

ELB Equipment  
Elkon Concrete Batching  
Plants  
HMD Africa (Offshore)  
Indeco Ind S.p.A.  
Keestrack n.v  
Marini S.p.A.  
Ormonde Machinery Ltd.

#### Concrete Equipment - Other

Amog S.r.l.  
Babacan Rubber Industry  
Carmix - Metalgalante S.p.A.  
Cavatorta France SAS  
Doosan Portable Power  
(Doosan Benelux SA)  
Fiori Group S.p.A.  
habermann materials GmbH  
HMD Africa (Offshore)  
Jessop & Associates (Pty) Ltd.  
KTI - Plersch Kaltetechnik  
GmbH  
LINTEC GmbH & Co. KG  
RATEC GmbH  
Vortex Hydra S.r.l.  
Weiler GmbH

### CONSTRUCTION VEHICLES

Aquamec Ltd.  
Bell Equipment Co. SA (Pty) Ltd  
Caterpillar SARL  
DEM Group  
Filtration Ltd.  
HMD Africa (Offshore)  
JCB World Head Quarters  
MAN Truck & Bus AG

Ritchie Bros. Auctioneers  
Shandong Shantui  
Construction Machinery  
Import & Export Co. Ltd.  
SMT Group  
Terex Trucks  
Van Viet Trucks Holland  
Volvo Construction Equipment

#### Dump Trucks and Haulers

BKT Tires  
Caterpillar SARL  
HMD Africa (Offshore)  
Iveco S.p.A.  
MAN Truck & Bus AG  
Mantrac Group  
Ormonde Machinery Ltd.  
PANAFRICAN GROUP

#### Engines, Components and Accessories

C.C.JENSEN AS  
Caterpillar SARL  
Filtration Ltd.  
HIMOINSA  
Jubaili Bros  
Kirkoskar Oil Engines Ltd.  
Mahindra & Mahindra Ltd.  
MAN Truck & Bus AG  
Motorenfabrik Hatz GmbH &  
Co. KG  
MTU South Africa (Pty) Ltd.  
Perkins Engines Co. Ltd.  
Volvo Penta

#### Site Dumpers

Carmix - Metalgalante S.p.A.  
Caterpillar SARL  
HMD Africa (Offshore)  
MAN Truck & Bus AG  
Wacker Neuson (Pty) Ltd.

#### Tractors

Action Construction  
Equipment Ltd.  
BKT Tires  
Caterpillar SARL  
Grupos Electrógenos Europa  
SA (GESAN)  
Iveco S.p.A.  
MAN Truck & Bus AG  
Mantrac Group  
MERLO S.p.A.  
PANAFRICAN GROUP  
TVH

#### Trailers

BEDELCO SPRL  
BKT Tires  
Goldhofer Aktiengesellschaft  
Iveco S.p.A.  
MAN Truck & Bus AG  
Wacker Neuson (Pty) Ltd.

#### Truck Mounted Platforms

ANIVI Ingegneria SA  
Iveco S.p.A.  
MAN Truck & Bus AG

#### Construction Vehicles - Other

Babacan Rubber Industry  
Caterpillar SARL  
HMD Africa (Offshore)

### CONSULTANCY SERVICES

Allott (Nigeria) Ltd.  
Doka Industries GmbH  
RATEC GmbH  
Spiroll Precast Services Ltd.  
The Development Initiative  
Ltd.

### CONVEYOR SYSTEMS

Aury Africa (Pty) Ltd  
ELB Equipment  
FLSmidth  
Keestrack n.v  
Magni Telescopic Handlers  
MECCANICA 2P S.r.l.  
Ormonde Machinery Ltd.  
Parker Plant Ltd.  
Phoenix Conveyor Belt  
Systems GmbH  
QUARRY MINING LLC  
Terex Minerals Processing  
Systems

### DEMOLITION EQUIPMENT

Bobcat (Doosan Benelux SA)  
Doosan Portable Power  
(Doosan Benelux SA)  
GEFCO Inc.  
Indeco Ind S.p.A.  
JCB World Head Quarters  
MB Crusher S.p.A.  
Rockster Recycler  
Volvo Construction Equipment

### DRILLING

ELB Equipment  
MAN Truck & Bus AG  
Soilmec S.p.A.  
Soosan Heavy Industries Co.  
Ltd.

### Components and Accessories

ERLAU AG  
Filtration Ltd.  
HELUKABEL South Africa (Pty)  
Ltd.

### Drilling Machinery and Plant

Bauer Maschinen GmbH  
Doosan Portable Power  
(Doosan Benelux SA)  
Soilmec S.p.A.

#### Piling

Amog S.r.l.  
Aquamec Ltd.  
Bauer Maschinen GmbH  
CONMIX Ltd.

### Trenching and Pipe Laying

ELB Equipment

#### Tunnelling

3D Laser Mapping Ltd.  
Liebherr- Export AG  
Soilmec S.p.A.  
Topcon Positioning Middle  
East and Africa FZE



**Drilling - Other**

Doosan Portable Power  
(Doosan Benelux SA)

**EARTHMOVING EQUIPMENT**

Action Construction  
Equipment Ltd.  
Bell Equipment Co. SA (Pty)  
Ltd  
Bobcat (Doosan Benelux SA)  
Caterpillar SARL  
DEM Group  
ELB Equipment  
GEFCO Inc.  
HMD Africa (Offshore)  
JCB World Head Quarters  
Liebherr- Export AG  
MB Crusher S.p.A.  
PANAFRICAN GROUP  
Ritchie Bros. Auctioneers  
Shandong Shantui  
Construction Machinery  
Import & Export Co. Ltd.  
SMT Group  
Spare Power Trading (Pty) Ltd.  
Terex Trucks  
Van Vliet Trucks Holland  
Volvo Construction Equipment

**Attachments and Accessories**

Bobcat (Doosan Benelux SA)  
C.C.JENSEN AS  
Caterpillar SARL  
Indeco Ind S.p.A.  
Magni Telescopic Handlers  
MB Crusher S.p.A.  
SENNEBOGEN  
Maschinenfabrik GmbH  
SRS Finlay

**Backhoe Loaders**

Action Construction  
Equipment Ltd.  
Amog S.r.l.  
BKT Tires  
Case Construction Machinery  
Caterpillar SARL  
ELB Equipment  
HMD Africa (Offshore)  
JCB World Head Quarters  
Mantrac Group  
New Holland Construction  
Machinery  
PANAFRICAN GROUP  
Swazi-Trac (Pty) Ltd.

**Dozers**

BKT Tires  
Case Construction Machinery  
Caterpillar SARL  
ELB Equipment  
HMD Africa (Offshore)  
Liebherr- Export AG  
Mantrac Group  
New Holland Construction  
Machinery  
PANAFRICAN GROUP

**Dumpsters**

Mantrac Group  
SRS Finlay  
Swazi-Trac (Pty) Ltd.

**Excavators**

Aquamec Ltd.  
BKT Tires  
Case Construction Machinery  
Caterpillar SARL  
ELB Equipment  
JCB World Head Quarters  
Liebherr- Export AG  
Mantrac Group  
New Holland Construction  
Machinery  
PANAFRICAN GROUP  
Spare Power Trading (Pty) Ltd.  
Swazi-Trac (Pty) Ltd.  
Wacker Neuson (Pty) Ltd.

**Loaders - Other**

BKT Tires  
Bobcat (Doosan Benelux SA)  
Case Construction Machinery

Caterpillar SARL  
ELB Equipment  
Fiori Group S.p.A.  
HMD Africa (Offshore)  
Mantrac Group  
New Holland Construction  
Machinery  
PANAFRICAN GROUP  
Wacker Neuson (Pty) Ltd.

**Mini-Excavators**

Bobcat (Doosan Benelux SA)  
Case Construction Machinery  
Caterpillar SARL  
Fiori Group S.p.A.  
HMD Africa (Offshore)  
JCB World Head Quarters  
Liebherr- Export AG  
Mantrac Group  
New Holland Construction  
Machinery  
Wacker Neuson (Pty) Ltd.

**Motor Graders**

Action Construction  
Equipment Ltd.  
BKT Tires  
Case Construction Machinery  
Caterpillar SARL  
ELB Equipment  
HMD Africa (Offshore)  
Mantrac Group  
New Holland Construction  
Machinery  
PANAFRICAN GROUP  
Swazi-Trac (Pty) Ltd.

**Scrapers**

Caterpillar SARL  
HMD Africa (Offshore)  
Mantrac Group

**Skidsteer Loaders**

BKT Tires  
Bobcat (Doosan Benelux SA)  
Case Construction Machinery  
Caterpillar SARL  
ELB Equipment  
HMD Africa (Offshore)  
JCB World Head Quarters  
Mantrac Group  
New Holland Construction  
Machinery  
Swazi-Trac (Pty) Ltd.  
Wacker Neuson (Pty) Ltd.

**Earthmoving Equipment - Other**

BEDELCO SPRL  
BKT Tires  
Caterpillar SARL  
Liebherr- Export AG  
Ritchie Bros. Auctioneers

**FREIGHT/LOGISTICS**

MAN Truck & Bus AG

**FINISHING**

Kraft Tool Co.

**Equipment**

Action Construction  
Equipment Ltd.  
Altaaqa Global CAT Rental  
Power  
HIMOINSA  
Kohler Power Systems

**Insulation Panels**

C.C.JENSEN AS  
KwikBuild (Pty) Ltd.

**Materials**

CONMIX Ltd.  
Interplast Ltd.  
Lafarge  
SENNEBOGEN  
Maschinenfabrik GmbH

**Paints**

CONMIX Ltd.

**Services**

The Development Initiative  
Ltd.

**GEOIMAGING**

3D Laser Mapping Ltd.  
KTI - Pliersch Kaltetechnik  
GmbH  
Topcon Positioning Middle  
East and Africa FZE

**LIFTING EQUIPMENT**

Action Construction  
Equipment Ltd.  
Bell Equipment Co. SA (Pty)  
Ltd  
ERLAU AG  
Grupos Electrógenos Europa  
SA (GESAN)  
HMD Africa (Offshore)  
JCB World Head Quarters  
Kresta Laurel Ltd.  
Liebherr- Export AG  
Magni Telescopic Handlers  
Pr Industrial S.r.l.  
Terex Trucks  
Van Vliet Trucks Holland  
Volvo Penta

**Access**

TVH

**Components and Accessories**

ERLAU AG  
HELUKABEL South Africa (Pty)  
Ltd.  
Rossi S.p.A.

**Cranes**

Action Construction  
Equipment Ltd.  
HMD Africa (Offshore)  
Kresta Laurel Ltd.  
Liebherr- Export AG  
SENNEBOGEN  
Maschinenfabrik GmbH  
Soilmec S.p.A.  
Soosan Heavy Industries Co.  
Ltd.

**Hoists**

FLSmith  
HMD Africa (Offshore)  
Kresta Laurel Ltd.  
Liebherr- Export AG  
Voith Turbo (Pty) Ltd.

**Hydraulic**

Voith Turbo (Pty) Ltd.

**Lift Trucks**

BKT Tires  
Cat Lift Trucks  
Jungheinrich AG  
Mantrac Group  
TVH

**Mechanical**

Voith Turbo (Pty) Ltd.

**Other Materials Handling**

Action Construction  
Equipment Ltd.  
ANIVI Ingenieria SA  
Aury Africa (Pty) Ltd  
Cat Lift Trucks  
Jungheinrich AG  
MECCANICA 2P S.r.l.  
QUARRY MINING LLC  
SRS Finlay

**Pneumatic**

BEDELCO SPRL

**Telescopic Handlers**

BKT Tires  
Bobcat (Doosan Benelux SA)  
Case Construction Machinery  
ELB Equipment  
HMD Africa (Offshore)  
JCB World Head Quarters  
Magni Telescopic Handlers  
MERLO S.p.A.  
New Holland Construction  
Machinery  
SENNEBOGEN  
Maschinenfabrik GmbH  
TVH  
Wacker Neuson (Pty) Ltd.

**MOTORS/DRIVERS/ CONTROLS**

Adroit Technologies

**OTHER SITE EQUIPMENT AND MATERIALS**

Altaaqa Global CAT Rental  
Power  
ANIVI Ingenieria SA  
Bobcat (Doosan Benelux SA)  
Coelmo SpA  
DHYBRID Power Systems  
GmbH  
Doosan Portable Power  
(Doosan Benelux SA)  
QUARRY MINING LLC

**Fencing**

Cavatorta France SAS  
Interplast Ltd.

**Lighting Masts/Towers**

Atlas Copco Portable Energy  
Division  
Doosan Portable Power  
(Doosan Benelux SA)  
Green Power Systems S.r.l.  
HIMOINSA  
Jubaili Bros  
Morris Site Machinery  
SDMO Industries  
SOL Inc. (Solar Outdoor  
Lighting)  
Wacker Neuson (Pty) Ltd.

**Pipe and Cable Detecting Systems**

Dowson & Dobson Industrial  
HELUKABEL South Africa (Pty)  
Ltd.  
Interplast Ltd.

**Sand Blasting Equipment**

Doosan Portable Power  
(Doosan Benelux SA)

**Scaffolding**

Doka Industries GmbH  
Form - Scaff  
HMD Africa (Offshore)  
Wonder Moldplast Pvt. Ltd.

**Silos**

ANIVI Ingenieria SA  
QUARRY MINING LLC

**Surveying Equipment**

3D Laser Mapping Ltd.  
Topcon Positioning Middle  
East and Africa FZE

**Temporary Housing and Offices**

KwikBuild (Pty) Ltd.

**MOBILE POWER SUPPLY UNITS**

Aggreko  
Coelmo SpA  
Doosan Portable Power  
(Doosan Benelux SA)  
FG Wilson  
Firefly  
Green Power Systems S.r.l.  
JMG  
Kirkoskar Oil Engines Ltd.  
Kohler Power Systems  
SDMO Industries  
Van Vliet Trucks Holland  
Visa S.p.A.  
YorPower Ltd.

**Generator Sets**

Aggreko  
Altaaqa Global CAT Rental  
Power  
Coelmo SpA  
Cummins Power Generation  
DHYBRID Power Systems  
GmbH  
FG Wilson  
Firefly  
Fronius International GmbH  
Green Power Systems S.r.l.  
HIMOINSA

HMD Africa (Offshore)  
JCB World Head Quarters  
JMG

Jubaili Bros  
Kirkoskar Oil Engines Ltd.  
Kohler Power Systems  
Kresta Laurel Ltd.  
Lovato Electric S.p.A.  
Mahindra & Mahindra Ltd.  
Morris Site Machinery  
Motorenfabrik Hatz GmbH &  
Co. KG  
MTU South Africa (Pty) Ltd.  
Pr Industrial S.r.l.  
SDMO Industries  
Visa S.p.A.  
Weiler GmbH  
Yellogen Ltd.

**PUMPING EQUIPMENT**

Aquamec Ltd.  
HMD Africa (Offshore)  
Kirkoskar Brothers Ltd.  
Morris Site Machinery  
Varisco S.p.A.  
Wacker Neuson (Pty) Ltd.  
Weir Minerals Africa (Pty) Ltd.

**Concrete**

Agria Machinery Services & Co.  
Ltd.  
Bobcat (Doosan Benelux SA)  
CONMIX Ltd.  
Elkon Concrete Batching  
Plants  
Lafarge  
Meka Crushing & Concrete  
Batching Technology

**Submersible**

Atlas Copco Portable Energy  
Division  
Kirkoskar Brothers Ltd.  
Varisco S.p.A.  
Wacker Neuson (Pty) Ltd.  
Weir Minerals Africa (Pty) Ltd.

**Truck Mounted**

Action Construction  
Equipment Ltd.  
BKT Tires  
HMD Africa (Offshore)  
MAN Truck & Bus AG

**Pumping Equipment - Other**

FLSmith  
HMD Africa (Offshore)  
Interplast Ltd.  
Kirkoskar Oil Engines Ltd.  
Maitek S.r.l.  
Motorenfabrik Hatz GmbH &  
Co. KG  
Varisco S.p.A.

**RAW MATERIALS**

Aury Africa (Pty) Ltd  
DEM Group  
Lafarge  
SMT Group  
Wear and Spare Parts

**Crushing, Screening and Washing**

ANIVI Ingenieria SA  
Aury Africa (Pty) Ltd  
ELB Equipment  
FLSmith  
Fritsch GmbH Milling and  
Sizing  
HMD Africa (Offshore)  
Keestrack n.v  
Maitek S.r.l.  
MB Crusher S.p.A.  
Meka Crushing & Concrete  
Batching Technology  
Minyu Machinery Corp.  
Ormonde Machinery Ltd.  
PANAFRICAN GROUP  
Parker Plant Ltd.  
Powerscreen  
QUARRY MINING LLC  
Rockster Recycler  
Spare Power Trading (Pty) Ltd.  
Talleres Nunez SA

Terex Minerals Processing Systems  
Volvo Penta  
Wear and Spare Parts  
Weir Minerals Africa (Pty) Ltd.

**Grinding Equipment**

ANIVI Ingegneria SA  
FLSmidth  
Fritsch GmbH Milling and Sizing  
HMD Africa (Offshore)  
Trelawny SPT Ltd.  
Weir Minerals Africa (Pty) Ltd.

**Mixing**

Fritsch GmbH Milling and Sizing  
habermann materials GmbH  
HMD Africa (Offshore)  
MAN Truck & Bus AG

**Quarrying**

Aury Africa (Pty) Ltd  
Doosan Portable Power (Doosan Benelux SA)  
Filtration Ltd.  
HMD Africa (Offshore)  
Keestrack n.v  
Liebherr- Export AG  
Magni Telescopic Handlers  
Meka Crushing & Concrete Batching Technology  
Minyu Machinery Corp.  
PANAFRICAN GROUP  
Ritchie Bros. Auctioneers  
Soosan Heavy Industries Co. Ltd.  
Terex Minerals Processing Systems  
Wear and Spare Parts  
Yellogen Ltd.

**Testing**

Aggreko

**Raw Materials - Other**

ANIVI Ingegneria SA  
HMD Africa (Offshore)  
Lafarge

**ROAD BUILDING EQUIPMENT**

Action Construction Equipment Ltd.  
BKT Tires  
BOMAG GmbH  
Caterpillar SARL  
Cavatorta France SAS  
Ciber Equipamentos Rodoviaros Ltda.  
Doosan Portable Power (Doosan Benelux SA)  
ELB Equipment  
Ermont SAS / Marini-Ermont  
HMD Africa (Offshore)  
JCB World Head Quarters  
Kraft Tool Co.  
Liebherr- Export AG  
MB Crusher S.p.A.  
PANAFRICAN GROUP  
Shandong Shantui Construction Machinery Import & Export Co. Ltd.  
Van Vliet Trucks Holland  
Volvo Construction Equipment  
Wacker Neuson (Pty) Ltd.

**Asphalt Plant**

Ciber Equipamentos Rodoviaros Ltda.  
Ermont SAS / Marini-Ermont  
LINTEC GmbH & Co. KG  
Marini S.p.A.  
Parker Plant Ltd.

**Compaction Equipment**

Action Construction Equipment Ltd.  
Agria Machinery Services & Co. Ltd.  
BOMAG GmbH  
Caterpillar SARL  
ELB Equipment  
JCB World Head Quarters  
Mantrac Group  
PANAFRICAN GROUP

Wacker Neuson (Pty) Ltd.

**Pavers**

BOMAG GmbH  
Caterpillar SARL  
ELB Equipment  
Mantrac Group  
PANAFRICAN GROUP

**Recycling**

Bobcat (Doosan Benelux SA)  
BOMAG GmbH  
Fritsch GmbH Milling and Sizing  
Liebherr- Export AG  
LINTEC GmbH & Co. KG  
Maitek S.r.l.  
Rockster Recycler  
SENNEBOGEN Maschinenfabrik GmbH  
Soosan Heavy Industries Co. Ltd.  
Terex Minerals Processing Systems

**Rollers**

Action Construction Equipment Ltd.  
Agria Machinery Services & Co. Ltd.  
BOMAG GmbH  
Caterpillar SARL  
ELB Equipment  
HMD Africa (Offshore)  
Wacker Neuson (Pty) Ltd.

**Road Building Equipment - Other**

Agria Machinery Services & Co. Ltd.  
Babacan Rubber Industry  
BEDELCO SPRL  
Bobcat (Doosan Benelux SA)  
Caterpillar SARL  
Cavatorta France SAS  
Doosan Portable Power (Doosan Benelux SA)  
HMD Africa (Offshore)

**SAFETY EQUIPMENT**

3D Laser Mapping Ltd.  
Doka Industries GmbH

**SOFTWARE**

3D Laser Mapping Ltd.  
Adroit Technologies

**Management Systems**

Adroit Technologies  
DHYBRID Power Systems GmbH

**Software - Other**

3D Laser Mapping Ltd.

**STEEL**

Downson & Dobson Industrial  
Magni Telescopic Handlers  
Zamil Steel Building Co. Egypt

**Fabrication and Structures**

Form - Scaff  
KwikBuild (Pty) Ltd.  
QUARRY MINING LLC

**Steel - Other**

ERLAU AG  
Zamil Steel Building Co. Egypt

**TOOLS**

DEM Group  
Doosan Portable Power (Doosan Benelux SA)  
Downson & Dobson Industrial  
MERLO S.p.A.  
SMT Group  
TVH

**Hydraulic**

Babacan Rubber Industry  
Kirkoskar Brothers Ltd.

**Mechanical**

KTI - Pliers Kaltetechnik GmbH  
Yellogen Ltd.

**Pneumatic**

BEDELCO SPRL  
Doosan Portable Power (Doosan Benelux SA)  
Downson & Dobson Industrial  
Trelawny SPT Ltd.

**Tools - Other**

Doosan Portable Power (Doosan Benelux SA)  
Grupos Electrógenos Europa SA (GESAN)  
Specialinsert S.r.l.  
Trelawny SPT Ltd.

**UNDERGROUND & MINING MACHINERY**

Aggreko  
Bell Equipment Co. SA (Pty) Ltd  
BKT Tires  
Iveco S.p.A.  
JCB World Head Quarters  
Liebherr- Export AG  
Magni Telescopic Handlers  
MAN Truck & Bus AG  
PANAFRICAN GROUP  
Soilmec S.p.A.  
Topcon Positioning Middle East and Africa FZE

**USED EQUIPMENT**

Atlas Copco Portable Energy Division  
Bauer Maschinen GmbH  
Bell Equipment Co. SA (Pty) Ltd  
Cat Lift Trucks  
Caterpillar SARL  
Doka Industries GmbH  
ELB Equipment  
Grupos Electrógenos Europa SA (GESAN)  
JCB World Head Quarters  
Jungheinrich AG  
Maitek S.r.l.  
MAN Truck & Bus AG  
Mantrac Group  
Morris Site Machinery  
PANAFRICAN GROUP  
Ritchie Bros. Auctioneers  
Spare Power Trading (Pty) Ltd.  
Visa S.p.A.  
Vortex Hydra S.r.l.  
Yellogen Ltd.

**Rental Equipment**

Altaaqa Global CAT Rental Power  
Bauer Maschinen GmbH  
Cat Lift Trucks  
FG Wilson  
JCB World Head Quarters  
Jungheinrich AG  
Kohler Power Systems  
Pr Industrial S.r.l.  
SDMO Industries  
Trelawny SPT Ltd.  
Visa S.p.A.  
Weir Minerals Africa (Pty) Ltd.  
Wonder Moldplast Pvt. Ltd.

**Complete Solutions for Electrical Needs**

Altaaqa Global CAT Rental Power  
DHYBRID Power Systems GmbH  
Fronius International GmbH  
GEFCO Inc.  
HELUKABEL South Africa (Pty) Ltd.  
Jubaili Bros  
Lovato Electric S.p.A.

**WELDING EQUIPMENT**

Coelmo SpA  
Green Power Systems S.r.l.  
Grupos Electrógenos Europa SA (GESAN)  
Interplast Ltd.  
Kresta Laurel Ltd.  
Morris Site Machinery

Section Two: Suppliers

**3D Laser Mapping Ltd.**

**Unit 1 Moorbridge Court Moorbridge Road East Bingham Nottingham NG13 8GG United Kingdom**  
**Tel: +44 1949 838004**  
**Fax: +44 8701 214605**  
**Web: www.3dlasermapping.com**  
**E-mail: info@3dlasermapping.com**

3D Laser Mapping is a world-leading specialist in the development and application of 3D Measurement technologies. This dynamic company is focused on delivering Geospatial Business Intelligence for 3D modelling, Mapping and Mining industries.

**Agents:**

South Africa - 3D Laser Mapping

**ACIMAC-Association of Italian Manufacturers of Machinery and Equipment for Ceramics**

**Via Fossa Buracchione 84 Baggiovara Modena, 41126 Italy**

**Tel: +39 059 510336**  
**Fax: +39 059 512175**  
**Web: www.acimac.it**  
**E-mail: info@acimac.it**

ACIMAC is the association of Italian suppliers of plant, machinery, equipment, semi-finished products, raw materials and services for the ceramic, heavy clay and refractories industries.

**Action Construction Equipment Ltd.**

**5th Floor TDI Centre Jasola, New Delhi 110025 India**

**Tel: +91 11 40549900**  
**Fax: +91 11 40549922**  
**Web: www.ace-cranes.com**  
**E-mail: bhogal@ace-cranes.com**

India's leading material handling and construction equipment manufacturing company with a majority market share in mobile cranes and tower cranes segment. In addition to mobile cranes, ACE also offers mobile/fixed tower cranes, crawler cranes, truck mounted cranes, lorry loaders, backhoe loaders/loaders, vibratory rollers, forklifts, tractors & harvesters and other construction equipment.

**Agents:**

Kenya - Poweron (East Africa) Ltd.  
Nigeria - Seagle International Ltd.  
South Africa - TOMA Equipment

**Adroit Technologies**

**20 Waterford Office Park Witkoppen Road Fourways South Africa**  
**Tel: +27 11 6588100**  
**Fax: +27 11 6588101**  
**Web: www.adroit.co.za**  
**E-mail: marketing@adroit.co.za**

Adroit Technologies is a privately held South African based software development company, developing award winning real

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**Agents:**

Botswana - Cinstrap  
Zimbabwe - Autocontrol Systems

**Aggreko**

**PO Box 17576 Jebel Ali Dubai United Arab Emirates**  
**Tel: +971 4 8086200**  
**Fax: +971 4 8834145**  
**Web: www.africa.aggreko.com**  
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**Agria Machinery Services & Co. Ltd.**

**PO Box AN5280 No. 5 Royalt Castle Road Kokomlele (Adjc. SSNIT Kokomlele Branch) Accra North Ghana**  
**Tel: +233 30 2222169**  
**Fax: +233 30 2222621**  
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**Fax: +234 1 2951122**  
**Web: www.allottnigeria.com**  
**E-mail: info@allottnigeria.com**

Allott (Nigeria) Ltd. established over 35 years ago has carried out over 350 projects in technical consulting on major infrastructure projects in Highway, Railways, Marine Terminals and Inland waterways in Nigeria.



**Altaaq Global CAT Rental Power**

PO Box 262989, Dubai  
United Arab Emirates  
Tel: +971 4 8808006  
Fax: +971 4 8808007  
Web:  
[www.altaaqglobal.com](http://www.altaaqglobal.com)  
E-mail: [rbagatsing@altaaqglobal.com](mailto:rbagatsing@altaaqglobal.com)

Altaaq Global, subsidiary of Zahid Group, has been selected by Caterpillar Inc. to deliver multi-megawatt turnkey temporary power solutions. The company owns, mobilizes, installs and operates temporary independent power plants at customer sites, focusing on markets in Sub-Saharan Africa, Central Asia, Indian Subcontinent, Latin America, South East Asia and MENA.

**Ammann (SA)**

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Fax: +27 86 5033971  
Web: [www.ammann-group.com](http://www.ammann-group.com)  
E-mail: [info.aza@ammann-group.com](mailto:info.aza@ammann-group.com)

**Ammann (Switzerland)**

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Fax: +41 62 9166402  
Web: [www.ammann-group.com](http://www.ammann-group.com)  
E-mail: [info.aag@ammann-group.com](mailto:info.aag@ammann-group.com)

**Amog S.r.l.**

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80031  
Italy  
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Fax: +39 081 8863398  
Web:  
[www.davinomixer.com](http://www.davinomixer.com)  
E-mail: [sales@davinogroup.com](mailto:sales@davinogroup.com)

Since 1975 Davinomixer has been bringing to the market the most innovative self loading mobile concrete mixers range being the Davino 360DELTA4, the ultimate, unique and the only load and cast all rounder mixer today available: 360° visibility mixer to produce high quality certifiable concrete thanks to the very advanced Davino weighing system.

**ANIVI Ingenieria SA**

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Loiu  
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Spain  
Tel: +34 94 4531900  
Fax: +34 94 4532175  
Web: [www.anivi.com](http://www.anivi.com)  
E-mail: [info@anivi.com](mailto:info@anivi.com)

Founded in 1939 in Spain, has been manufacturing machines, equipment and complete plants for the treatment of cement, ore and chemical products. Providing to our customers ROI's of less than 10 months on modular & portable cement grinding plants and reduction of investment risks.

**Aquamec Ltd.**



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27801  
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Tel: +358 10 4026400  
Fax: +358 10 4026422  
Web: [www.watermaster.fi](http://www.watermaster.fi)  
E-mail: [watermaster@watermaster.fi](mailto:watermaster@watermaster.fi)

Watermaster is an amphibious multipurpose dredger designed for all shallow water work. Watermaster's capabilities include: suction dredging, backhoe dredging, raking & piling. Watermaster is suitable for numerous applications: restoring shallow waterways and shores, preventing floods, construction work in water environment and maintenance of process-and wastewater ponds in mines.

**Atlas Copco Portable Energy Division**

Ingberthoeveweg 7  
Aartselaar  
2630  
Belgium  
Tel: +32 3 7508550  
Web: [www.atlascopco.com](http://www.atlascopco.com)  
E-mail: [paul.humphreys@be.atlascopco.com](mailto:paul.humphreys@be.atlascopco.com)

Atlas Copco is a world-leading provider of sustainable productivity solutions. We serve customers in more than 180 countries with products and services focused on

productivity, energy efficiency, safety and ergonomics. The Portable Energy division develops, manufactures and markets portable compressors, high pressure boosters, generators, light towers and portable dewatering pumps.

**Agents:**

- Algeria - Atlas Copco Algeria S.p.A
- Angola - Atlas Copco Angola, Lda.
- Benin - Atlas Copco Senegal SARL
- Botswana - Atlas Copco South Africa (Pty) Ltd. Construction Technique
- Burkina Faso - Atlas Copco Senegal SARL
- Burundi - Atlas Copco Tanzania Ltd.
- Cameroon - Atlas Copco Senegal SARL
- Central African Republic - Atlas Copco Senegal SARL
- Chad - Atlas Copco Senegal SARL
- Congo DR - Atlas Copco Zambia Ltd.
- Cote D'Ivoire - Atlas Copco Senegal SARL
- Djibouti - Atlas Copco Tanzania Ltd.
- Eritrea - Atlas Copco Tanzania Ltd.
- Ethiopia - Atlas Copco Tanzania Ltd.
- Gabon - Atlas Copco Senegal SARL
- Gambia - Atlas Copco Senegal SARL
- Ghana - Atlas Copco Ghana Ltd.
- Guinea - Atlas Copco Senegal SARL
- Guinea Bissau - Atlas Copco Senegal SARL
- Kenya - Atlas Copco Tanzania Ltd.
- Liberia - Atlas Copco Senegal SARL
- Madagascar - Atlas Copco Tanzania Ltd.
- Malawi - Atlas Copco Zambia Ltd.
- Mali - Atlas Copco Senegal SARL
- Mauritania - Atlas Copco Senegal SARL
- Mauritius - Atlas Copco Tanzania Ltd.
- Morocco - Atlas Copco Maroc SA
- Mozambique - Atlas Copco South Africa (Pty) Ltd. Construction Technique

- Namibia - Atlas Copco South Africa (Pty) Ltd. Construction Technique
- Niger - Atlas Copco Senegal SARL
- Nigeria - Atlas Copco Nigeria Ltd.
- Rwanda - Atlas Copco Tanzania Ltd.
- Senegal - Atlas Copco Senegal SARL
- Seychelles - Atlas Copco Tanzania Ltd.
- Sierra Leone - Atlas Copco Senegal SARL
- Somalia - Atlas Copco Senegal SARL
- South Africa - Atlas Copco South Africa (Pty) Ltd. Construction Technique
- Tanzania - Atlas Copco Tanzania Ltd.
- Togo - Atlas Copco Senegal SARL
- Uganda - Atlas Copco Tanzania Ltd.
- Zambia - Atlas Copco Zambia Ltd.
- Zimbabwe - Atlas Copco Zimbabwe Pvt. Ltd.

**Aury Africa (Pty) Ltd.**



19 Graniet Road  
Jet Park Boksburg  
Johannesburg  
South Africa  
Tel: +27 11 0266642  
Web: [www.auryafrica.co.za](http://www.auryafrica.co.za)  
E-mail: [matt@auryafrica.co.za](mailto:matt@auryafrica.co.za)

Aury Africa is made up of a dedicated team of professionals. The company goal is to provide the best innovative screening media, vibrating equipment solutions and services to the global mining market. Aury specialises in screening media and consumables, crushing equipment and conveyor systems.

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[www.export.legrand.com](http://www.export.legrand.com)

**Babacan Rubber Industry**



1173 Sokak  
No:20-22  
Ostim  
Ankara  
Turkey  
Tel: +90 312 3854910  
Fax: +90 312 3540194  
Web:  
www.babacanrubber.com  
E-mail: info@babacanrubber.com

Babacan Rubber Industry is the one of major manufacturer of high-quality rubber spare parts for heavy equipment, construction and special machinery in the territory of Turkey. We produce chevrons, concrete pump pistons, shock absorbers, engine mounts, upper shock absorbers (for beakers), couplings, bellows, diaphragms, seals and specially ordered rubber products.

**Barloworld Equipamentos Angola Lda.**

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Sector Talatona  
Luanda  
Angola  
Tel: +244 222 460220/237  
Fax: +244 222 460605/538  
Web: www.barloworld-equipment.com  
E-mail: info@barloworld-angola.com

**Barloworld Equipment**

Electron Ave  
Isando  
Gauteng  
1600  
South Africa  
Tel: +27 11 9290000  
Fax: +27 11 9290044  
Web: www.barloworld-equipment.com  
E-mail: marketing2@barloworld-equipment.com

**Bauer Maschinen GmbH**

Bauer-Strasse 1  
Schrobenhausen  
86529  
Germany  
Tel: +49 8252 971888  
Fax: +49 8252 971896  
Web: www.bauer.de  
E-mail: hermann.schrattenthaler@bauer.de

Supplier of equipment for piling and mining.

**Agents:**  
South Africa - BAUER Technologies South Africa

**Baumaschinen Fink GmbH**

Kirschenleite 25  
Schnaittach  
91220  
Germany  
Tel: +49 9153 970970  
Fax: +49 9153 9709720  
Web: www.bm-fink.de  
E-mail: info@bm-fink.de

**BEDELCO SPRL**

Rue de l'Environnement 22  
Seraing, 4100  
Belgium  
Tel: +32 4 3301860  
Fax: +32 4 3301866  
Web: www.bedelco.com  
E-mail: info@bedelco.com

BEDELCO is a European tyre dealer, based in Belgium we deliver OTR and truck tyres in mines and careers all over the world with a large stock in Belgium, we can react quickly to customers demands. Customers satisfaction and timely deliveries are our main targets.

**Bell Equipment Co. SA (Pty) Ltd**

Private Bag X20046  
Empangeni, 3880  
South Africa  
Tel: +27 35 9079431  
Web:  
www.bellequipment.com  
E-mail: stephenj@bell.co.za

OEM manufacturer and distributor of heavy duty equipment for the Mining, Construction and Forestry industries.

**Agents:**  
South Africa - Bell Equipment Co. SA (Pty) Ltd

**Benninghoven GmbH & Co. KG**

Industriegebiet  
Muelheim  
Mosel, 54486  
Germany  
Tel: +49 6534 1890  
Fax: +49 6534 8970  
Web:  
www.benninghoven.com  
E-mail: info@benninghoven.com

**BKT Tires**

BKT House, C/15  
Trade World Kamala Mills  
Compound  
Senapati Bapat Marg  
Lower Parel, Mumbai  
400013  
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Tel: +91 22 66663800  
Fax: +91 22 66663898/99  
Web: www.bkt-tires.com  
E-mail: apandit@bkt-tires.com

We are one of the largest manufacturers and exporters of off highway tires from India. Our company exports tires to more than 130 countries globally. We mainly manufacture OTR, agricultural, industrial and construction tires.

**Bobcat (Doosan Benelux SA)**



PO Box 262688  
JLT Platinum Tower  
Cluster I  
Level 18, Office 1802, Dubai  
United Arab Emirates  
Tel: +971 4 2767206 / 214  
Fax: +971 4 2767204  
Web: www.bobcat.eu  
E-mail: gaby.rhayem@doosan.com

Bobcat manufactures the widest range of market leading compact equipment including Skid-Steer and Compact Tracked

Loaders, Compact Excavators and Telescopic Handlers. The impressive selection of Bobcat attachments for use on these machines includes Wheel Saws, Trenchers Planers, Hydraulic Breakers and Graders, saving time, effort and cost in carrying out an increasing range of applications throughout Africa.

**BOMAG GmbH**

Hellerwald  
Boppard  
56154  
Germany  
Tel: +49 6742 1000  
Fax: +49 6742 3090  
Web: www.bomag.com  
E-mail: info@bomag.com

BOMAG is a manufacturer of machines for the compaction of soils, asphalt and refuse; Stabilizers/Recyclers, Milling machines as well as pavers. The company employs approx.2,200 people (including 1,400 at its headquarters in Boppard, Germany) and is represented with its machines in approx.120 countries.

Contact for African Region:  
BOMAG GmbH  
Daniel Werner-Meier  
Area Sales Manager Africa  
Hellerwald  
56154 Boppard  
Germany  
Email: daniel.werner-meier@bomag.com

**Breaker Technology Ltd.**

PO Box 130, 35 Elgin Street  
Thornbury, ON  
N0H 2P0  
Canada  
Tel: +1 519 5992015  
Fax: +1 519 5996803  
Web: www.rockbreaker.com

**C.C.JENSEN AS**

Loevholmen 13  
Svendborg  
5700, Denmark  
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Fax: +45 62224615  
Web: www.cjc.dk  
E-mail: ccjensen@cjc.dk

C.C.JENSEN is a global leader in offline oil filtration with more than 60 years of experience in oil filtration. Effective oil filtration is the key in order to maintain the oil clean in crushers, mills, earth moving machinery etc. Avoid unforeseen breakdowns, excessive wear on components and frequent oil changes. Install a CJC Offline Oil Filter

**Agents:**  
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South Africa - IQ Oil Filtration

**Carmix - Metalgalante S.p.A.**



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Noventa di Piave  
Venezia Veneto  
30020  
Italy  
Tel: +39 0421 65191  
Fax: +39 0421 658838  
Web: www.carmix.com  
E-mail: info@carmix.com

Metalgalante is specialized on the manufacture of off-road self-loading mobile concrete mixers with over 30 years of experience. Our mixers are ideal for all job-sites where medium or small quantities of

concrete are continuously needed during the day such as: sewage systems, water, telephone and electricity lines constructions, side road and low cost housing. In all those situation where ready mix system is not available and in all job sites which are not accessible to transit mixers.

With our system, there is no waiting, no expensive, cost and quality of concrete is assured because the client can control the production directly.

**Agents:**

Angola - CI & MA Comp. Ind.  
Cameroon - Bernabe Cameroun  
Congo Republic - Bernabe Congo  
Aluongo  
Cote D'Ivoire - Bernabe Cote D'Ivoire  
Gabon - Bernabe Gabon Libreville  
Mauritius - Mecom Mechanisation Co. Ltd.  
Morocco - SBMH  
Mozambique - Sotema Lda.  
Namibia - Carmix Namibia Hire & Sales  
Senegal - Bernabe Senegal

**Case Construction Machinery**

Riva Paradiso 14  
Lugano  
6901  
Switzerland  
Tel: +41 91 9853800  
Fax: +41 91 9853647  
Web: www.cnh.com  
E-mail: international.ce.media@cnh.com

Case Construction Equipment sells and supports a full line of construction equipment around the world. Through Case dealers, customers have access to a true professional partner—with world-class equipment and aftermarket support. Case is a division of CNH Global NV, a majority-owned subsidiary of Fiat Industrial S.p.A. More information is available at www.casece.com.

**Agents:**

Algeria - ARC Trucks  
Algeria - EURL C.N.H.A.  
Angola - Tracto-Lena  
Egypt - Unimar Egypt  
Kenya - CMC Motors Group Ltd.  
Libya - Tanmia Haditha Co.  
Madagascar - Entrepoto Comercial De Mocambique SARRL  
Madagascar - Hughes Motors (Tanzania) Ltd.  
Mauritius - Entrepoto Comercial De Mocambique SARRL  
Mauritius - Hughes Motors (Tanzania) Ltd.  
Morocco - Soberma  
Mozambique - Entrepoto Comercial De Mocambique SARRL  
Nigeria - Roots Equipment and Material Ltd.  
Reunion - Entrepoto Comercial De Mocambique SARRL  
Reunion - Hughes Motors (Tanzania) Ltd.  
Senegal - ADC Africa Distribution Co. b.v  
South Africa - CSE Cape Town  
South Africa - CSE George  
South Africa - CSE Isando  
South Africa - CSE Pinetown  
South Africa - CSE Port Elizabeth  
Sudan - The Central Trading Co. Ltd.  
Tanzania - Hughes Motors (Tanzania) Ltd.  
Tunisia - Sotradies  
Zambia - Proshaw (Pty) Ltd.  
Zimbabwe - Univer Enterprises Pvt. Ltd.

**Cat Lift Trucks**

Hefbrugweg 77  
Almere  
1332AC  
The Netherlands  
Tel: +31 36 5494311  
Fax: +31 36 5495697  
Web: www.catlifttruck.com  
E-mail: info@catlifttruck.com

Cat Lift Trucks, based in the Netherlands, is one of the factories on Cat forklift trucks and warehouse equipment. We are serving the EAME market with high quality products and a broad global dealer network.

**Agents:**

Algeria - Altractors SARRL  
Cote D'Ivoire - Matforce (F.G. Industries SAS)  
Egypt - Mantrac  
Ethiopia - Ries Engineering S. Co. (Ethiopia - Cat Lift)  
Ghana - Mantrac Ghana Ltd. (Ghana - Cat Lift)  
Kenya - Mantrac Kenya Ltd. (Nairobi) [Kenya - Cat Lift]  
Libya - Free Libya Tractors  
Nigeria - Mantrac Nigeria Ltd. (Lagos) [Nigeria - Cat Lift]  
Sierra Leone - Mantrac Sierra Leone Ltd. (Freetown) [Sierra Leone - Cat Lift]  
South Sudan - Ezentus FZE Co. Ltd.  
Tanzania - Mantrac Tanzania Ltd. (Dar Es Salaam) [Tanzania - Cat Lift]  
Tunisia - Parenin SA (Tunisia - Cat Lift)  
Uganda - Mantrac Uganda Ltd. (Kampala) [Uganda - Cat Lift]  
Zambia - Industrial Equipment Ltd

**Caterpillar SARRL**

76 Route de Frontenex  
Geneva 6  
12116  
Switzerland  
Tel: +41 22 8494444  
Web: www.cat.com

For more than 85 years, Caterpillar Inc. has been making sustainable progress possible and driving positive change on every continent. Caterpillar is the world's leading manufacturer of construction and mining equipment, diesel and natural gas engines, industrial gas turbines and diesel-electric locomotives. www.caterpillar.com.

**Agents:**

Algeria - Bergerat Monnoyeur  
Angola - Barloworld Equipamentos Angola Lda.  
Botswana - Barloworld Equipment Botswana Pvt. Ltd.  
Burkina Faso - Burkina Equipments  
Cameroon - Tractrafic Equipment Cameroun  
Chad - Tractrafic Equipment  
Congo DR - Tractrafic Equipment RDC  
Congo Republic - Tractrafic Equipment Congo  
Cote D'Ivoire - Manutention Africaine  
Djibouti - Anciens Comptoirs Ries  
Egypt - Mantrac Egypt  
Eritrea - Eritrea Equipment PLC  
Ethiopia - Ries Engineering S. Co. (Caterpillar SARRL)  
Gabon - Tractrafic Equipment Gabon  
Gambia - JA Delmas Export  
Ghana - Mantrac Ghana Ltd.  
Guinea - Manutention Guineenne  
Guinea Bissau - Bissau Equipamentos  
Guinee Equatoriale - Tractrafic Equipment (Guinee equ)  
Kenya - Mantrac SAE  
Lesotho - Barloworld (LESOTHO)



Liberia - Liberia Equipment Ltd.  
 Madagascar - Henri Fraise Fils & Co.  
 Malawi - Barloworld Equipment Malawi Ltd.  
 Malawi - Barloworld  
 Mali - Manutention Africaine  
 Mauritania - Societe Mauritanienne Des Tracteurs SARL  
 Mauritius - Ireland Blyth Ltd.  
 Mauritius - Tractraffic Equipment International (mauritius)  
 Morocco - Tractraffic Equipment Maroc  
 Mozambique - Barloworld  
 Namibia - Barloworld Namibia (Pty) Ltd.  
 Niger - Manutention Africaine  
 Nigeria - Mantrac Nigeria Ltd.  
 Reunion - Societe Commerciale Industrielle de Matieres  
 Rwanda - Tractraffic Equipment Rwanda  
 Senegal - Societe Auxiliaire (Senegal) D Equipements (Saudequip)  
 Sierra Leone - Mantrac Sierra Loene Ltd.  
 South Africa - Barloworld Equipment  
 Swaziland - Barloworld Equipment Swaziland (Pty) Ltd.  
 Tanzania - Mantrac SAE  
 Togo - Togo Equipment  
 Tunisia - Parenin SA  
 Uganda - Mantrac Uganda Ltd.  
 Yemen - Tehama Trading  
 Zambia - Barloworld Equipment Zambia Ltd.  
 Zimbabwe - Barzem Enterprises Pvt. Ltd.

**Cavatorta France SAS**

Rue Jean-Baptiste Godin  
 ZI de Villeneuve St Germain  
 Villeneuve St. Germain  
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 France  
 Tel: +39 3 484121305  
 Web: www.cavatorta.it  
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**Ciber Equipamentos Rodoviaros Ltda.**



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 Fax: +55 51 33649228  
 Web: www.ciber.com.br  
 E-mail: ciber@ciber.com.br

Ciber is a company in the road building and equipment industry; a member of the Wirtgen Group, that also comprises the brands Wirtgen, Voegel, Hamm and Kleeman. Ciber offers a complete line of equipment for carrying out all the highway building process for building, maintaining and repairing pavements.

**Agents:**

Algeria - TPS - Tractor Parts Services SARL  
 Angola - Moviter Equipamentos Lda  
 Morocco - SMDM - Societe Marocaine de Distribution Materiel  
 Nigeria - SCOA Trac  
 South Africa - Wirtgen South Africa (Pty) Ltd.

**Coelmo SpA**

Agglomerato Industriale ASI  
 Acerra (NA), 80011  
 Italy  
 Tel: +39 081 8039731  
 Fax: +39 081 8039724  
 Web: www.coelmo.it  
 E-mail: sales@coelmo.it

Coelmo is one of the oldest European manufacturers of industrial and marine generators from 3 kVA up to 3000 kVA. Based in Italy, with a large stock available to be shipped overnight to any destination in the world. Company profile products and modules are available on line at www.coelmo.it.

**Agents:**

Togo - ADTF SARL

**CONMIX Ltd.**

PO Box 5936  
 Sharjah  
 United Arab Emirates  
 Tel: +971 6 5314155  
 Fax: +971 6 5314332  
 Web: www.conmix.com  
 E-mail: conmix@conmix.com

The business portfolio of CONMIX Ltd. includes - Ready Mix Concrete, Pre Mix Plaster, Construction Chemicals, Piling & Water Treatment and Oilfield Additives. Company has multiple manufacturing facilities.

**Conrico International**

Hanworth Lane Business  
 Park, Chertsey, Surrey  
 KT16 9LA  
 United Kingdom  
 Tel: +44 1932 567321  
 Web: www.conrico.com  
 E-mail: info@conrico.com

**Convergent Group SA**

Zoning Industriel de  
 Mariembourg  
 Rue des Mousquetaires Gris  
 35, 5660  
 Mariembourg  
 Belgium  
 Europe  
 Tel: +32 60 390752  
 Fax: +32 60 390751  
 Web: www.convergent-group.com  
 E-mail: info@convergent-group.com

**Cummins Power Generation**

8 Harrowdene Office Park  
 Western Service Road  
 Woodmead  
 Johannesburg  
 South Africa  
 Tel: +27 11 5898400  
 Fax: +27 11 5898450  
 Web: www.cumminspower.com  
 E-mail: cpq.uk@cummins.com

**Agents:**

Algeria - Cummins Energie Algeria  
 Angola - Cummins Angola  
 Congo DR - BIA Overseas  
 Congo Republic - Approvisionnement Congo Service  
 Kenya - Car & General  
 Morocco - Soberma Groupe Auto Hall  
 Nigeria - Cummins West Africa Ltd.  
 South Africa - Cummins South Africa  
 Tunisia - Sotudis

**Dangote Group**

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 1 Alfred Rewane Road  
 Falomo Ikoyi  
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 Nigeria  
 Tel: +234 1 4480815/4480816  
 Fax: +234 1 4630316/2712231  
 Web: www.dangote.com  
 E-mail: corporate.communications@dangote.com

**DEM Group**

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 Belgium  
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 Fax: +32 2 7249079  
 Web: www.dem-group.com  
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DEM Group is the official John Deere Construction & Forestry, Hitachi Construction Machinery and Wirtgen group distributor for north, west and central Africa. The undisputed quality and performance of our equipment, our commitment to local service and the expertise of our after-sales service provide essential support for the development of your activities. DEM Subsidiaries: - DEM Algeria, DEM Congo, DEM DRC, DEM Côte d'Ivoire, DEM Ghana, DEM Mauritania, DEM Maroc, DEM Nigeria and DEM Senegal.

**DHYBRID Power Systems GmbH**

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 82131  
 Germany  
 Tel: +49 89 8994810  
 Fax: +49 89 899481200  
 Web: www.dhybrid.de  
 E-mail: contact@dhybrid.de

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 Fax: +43 7472 64430  
 Web: www.doka.com  
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 Fax: +43 7472 64430  
 Web Site: www.doka.com  
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 Contact: Stefan Zoelfel

**Agents:**

Algeria - Doka Algeria SARL  
 Angola - Carlos Spinola  
 Egypt - Doka Egypt Doka GmbH  
 Ethiopia - Orchid Business Group Plc  
 Ghana - Luca Chiappa  
 Kenya - Kimpton Ltd.  
 Morocco - Doka Maroc SARL-AU  
 Mozambique - Doka Mozambique Lda.  
 ledby South Africa (Pty)  
 Nigeria - Doka GmbH Nigeria  
 Senegal - 2S BTP  
 South Africa - Doka South Africa (Pty)  
 Uganda - Dynaco Engineering and Civil Works Contractors

**Doosan Portable Power (Doosan Benelux SA)**



PO Box 262688  
 JLT Platinum Tower  
 Cluster I, Level 18  
 Office 1802, Dubai  
 United Arab Emirates  
 Tel: +971 4 2767206  
 Fax: +971 4 2767204  
 Web: www.doosanportablepower.com  
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 South Africa  
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 Fax: +27 11 9187208  
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 E-mail: dalenew@elbquip.co.za

ELB Equipment, South Africa, is one of those few companies that can offer world-class quality earthmoving, construction, mining and recycling equipment to customers in the RSA, Southern Africa & East Africa.

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**Elkon Concrete Batching Plants**

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 Dergeler Sok.  
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 Turkey  
 Tel: +90 212 2889633  
 Fax: +90 212 2746310  
 Web: www.elkonmix.com  
 E-mail: info@elkomix.com

Elkon is one of the leading manufacturer of stationary concrete batching plants, mobile concrete batching plants, compact concrete batching plants, trailer type concrete pumps, concrete recycling plants and mixers: Pan, planetary and twinshaft. Company assures quality of its products with following certificates: NSF (ISO9001: 2008), TÜV (ISO9001: 2008), Gost-R, CE, and Ukrsepro.

**ERLAU AG**

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 Germany  
 Tel: +49 73615950  
 Fax: +49 73615953214  
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**Agents:**

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**Ermont SAS / Marini-Ermont**

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 Fax: +33 4 77734885  
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**Faymonville Distribution AG**

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 L - 9990 WEISWAMPACH  
 Luxembourg  
 Tel: +352 26 9004155  
 Fax: +352 26 9004425  
 Web: www.faymonville.com  
 E-mail: sales@faymonville.com

**FG Wilson**



**1 Millennium Way  
Springvale Business Park  
Springfield Road  
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United Kingdom  
Tel: +44 28 90495000  
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**Filtration Ltd.**

**Unit 3038 Dean Road  
Avonmouth Bristol, England  
BS11 8AT  
United Kingdom  
Tel: +44 117 9822206  
Fax: +44 117 9382272  
Web: www.filtration-ltd.co.uk  
E-mail: info@filtration-ltd.co.uk**

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**Fiori Group S.p.A.**

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Italy  
Tel: +39 0535 92357  
Fax: +39 0535 90960  
Web: www.fiorigroup.com  
E-mail: putifarri.nunzio@fiorigroup.com**

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- Kenya - Engineering Supplies 2001 Ltd.
- Libya - Tanmia Haditha Co.
- Mauritania - Mauritanie SARL (Importateur MAN Truck & Bus AG)
- Morocco - Maroc Trading AA
- Nigeria - Scoa Nigeria
- South Africa - Pan Mixer SA (Pty) Ltd.
- Tanzania - Mining Agricultural Construction Services (MACS)
- Tunisia - Le Materiel SA

**Firefly**

**Unit 20, Cliffe Industrial Estate, South Street Lewes, East Sussex BN8 6JL  
United Kingdom  
Tel: +44 1273 409595  
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**Agents:**

South Africa - Labotec (Pty) Ltd.

**Fronius International GmbH**



**Froniusplatz 1, 4600, Wels  
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USA  
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Web: www.gefco.com  
E-mail: intsales@gefco.com**

**Goldhofer Aktiengesellschaft**

**Donaustrasse 95  
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Germany  
Tel: +49 8331 150  
Web: www.goldhofer.de  
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**Green Power Systems S.r.l.**

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61028  
Italy  
Tel: +39 0722 726411  
Fax: +39 0722 720092  
Web: www.greenpowergen.com  
E-mail: giovanni@greenpowergen.com**

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**Grupos Eléctricos Europa SA (GESAN)**

**Polígono Pitarco II  
Parcela, 20  
Muel (Zaragoza)  
50450  
Spain  
Tel: +34 902 110316/  
976 145432  
Fax: +34 902 110318  
Web: www.gesan.com  
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Founded in 1986, GESAN is today an energy solutions integrator, engaged in the manufacture of water & air - cooled diesel generators, welders, petrol units and lighting towers. Offering a complete range of products up to 3,100 kVA, we are able to supply over 778,000 kVA per annum in 90 countries around the world.

**habermann materials GmbH**

**Wullener Feld 73  
Witten  
58454  
Germany  
Tel: +49 2302 6606139  
Fax: +49 2302 6606141  
Web: www.habermann-materials.de  
E-mail: mail@hbm-materials.de**

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Fax: +49 9631 80111  
Web: www.hamm.eu  
E-mail: info@hamm.eu**

**HawkeyePedershaab**

**Saltumvej 25  
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Denmark  
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Tel: +34 968 191128  
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Web: www.himoinsa.com  
E-mail: info@himoinsa.com**

Founded in 1982, HIMOINSA is multinational specializing in the

manufacture of generator sets and lighting towers. Thanks to an effective internationalization policy, the company is now present in over 100 countries. One of HIMOINSA's main strengths is that it is a vertical manufacturer. It can guarantee the reliability and excellent performance of our products because we manufacture all of the components in the generator set, and only use engines from leading manufacturers. HIMOINSA has supplied power to major international projects across the five continents, providing power solutions in the construction, rental, telecommunications, data center, mining sector and developing high power solutions in medium and low voltage.

**Agents:**

Angola - Himoinsa Angola

**HMD Africa (Offshore)**

**Plot # 38  
Dbayeh Highway  
Cap 41 Bldg 6th Floor Matn  
Lebanon  
Tel: +961 4 444248/9  
Fax: +961 4 444248/9 Ext 116  
Web: www.hmd-africa.com  
E-mail: info@hmd-africa.com**

HMD Africa (Offshore) is a dynamic network of leading machinery and equipment distributor in West Africa that caters to the needs of mining, construction, earthmoving, asphalt, roadwork, recycling, transportation and agriculture industries, operating in more than 20 African countries and International Markets. Our dedicated team provides African and International Markets with excellent service and first-class productivity through certified after-sales and spare parts services.

**Indeco Ind S.p.A.**

**Viale Lindemann 10  
Bari  
70132  
Italy  
Tel: +39 080 5313370  
Fax: +39 080 5377976  
Web: www.indeco.it  
E-mail: marketing@indeco.it**

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**Agents:**

South Africa - CTC Plant Company Pty Ltd.

**Interplast Ltd.**

**PO Box AD 330  
Accra  
Ghana  
Tel: +233 30 2819000  
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**IREM S.p.A. a socio unico**

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Borgone (Torino), 10050  
Italy  
Tel: +39 011 9648211  
Fax: +39 011 9648222  
Web: www.irem.it  
E-mail: svm@irem.it

IREM S.p.A. specialises in design and manufacture of 1PH and 3PH electro-dynamic voltage regulators and line conditioners - in standard and customized versions - with power ratings from 1 to 4750 kVA for indoor and outdoor installation. In business since 1947, IREM is a medium size company (staff 110 people) exporting all over the world. Company according to ISO9001 (since 1983), and ISO 14001 (since 2000) and BS OHSAS 18001 (since 2014) standards. Typical application fields: broadcast, telecommunication, industrial applications, electromedical appliances, machine tools, manufacturing plants, banks and insurance companies, construction, oil and gas, mining, a.s.o.

**Agents:**

Ghana - Modern Age Technologies Ltd.  
Kenya - Specialised Power Systems Ltd.

**Iveco S.p.A.**

Via Puglia, 35, Torino, 10156  
Italy  
Tel: +39 011 0072111  
Fax: +39 011 0075849  
Web: www.iveco.com

Iveco is a world leading truck manufacturer, including mining trucks, with a full range of models engineered to be performing with any cargo and mission and suitable to any transport applications, especially ASTRA trucks that continue to be the leader in terms of heavy duty chassis, performance and suited for tough African condition.

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Lakeside  
Staffordshire, England  
ST14 5JP  
United Kingdom  
Tel: +44 1889 590312  
Web: www.jcb.com

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African Agents:  
All countries in Africa  
www.JCBAfrica.com

**Jessop & Associates (Pty) Ltd.**



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Three Rivers, 1935  
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Tel: +27 16 4212521  
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**New Holland Construction Machinery**

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Web: www.parkerplant.com  
E-mail: sales@parkerplant.com

Parker Plant manufactures and supplies a comprehensive range of crushing, screening, asphalt and concrete plants as well as bitumen / road surfacing equipment and bulk handling conveyor systems.

**Partglobal Corp Sdn Bhd**

No. 29-30, Jalan 5/116B  
Kuchai Ent. Park  
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Kuala Lumpur, 58200  
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Tel: +60 3 79816511  
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**Perkins Engines Co. Ltd.**

Frank Perkins Way  
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Cambridgeshire, PE1 5FQ  
United Kingdom  
Tel: +44 1733 583000  
Web: www.perkins.com  
E-mail: webmaster\_perkins@  
perkins.com

Perkins is a leading supplier of off-highway diesel and gas engines in the 4 - 2000 kW (5 - 2800 hp) market. Our dependable, productive and fuel efficient engines are trusted by leading manufacturers in the construction, industrial, materials handling and electrical power generation markets.

**Phoenix Conveyor Belt Systems GmbH**

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Hamburg, 21079  
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Tel: +49 40 766703  
Fax: +49 40 76672413  
Web: www.phoenix-  
conveyor-belts.com  
E-mail: info@phoenix-cbs.com

Phoenix conveyor belts, headquartered in German Hamburg, is an international group company that is more than 150 years old. Phoenix Conveyor Belt Systems GmbH has produced significant advancements in conveyor belt design, which include world records such as the Strongest Belts, the Steepest Overland and the World's Heaviest Belt, to name a few.

**Powerscreen**



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Fax: +44 2887 747231  
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Powerscreen is an expert in the design and manufacture of mobile crushing and screening equipment. With a rich heritage of design and manufacturing excellence, Powerscreen has grown to become a leading force in the original equipment manufacturing sector. Powerscreen machines cover the full range of material processing requirements for the mining, quarrying, demolition and recycling industries.

**Pr Industrial S.r.l.**

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PRAMAC is an Italy-based Co. engaged in the manufacturing of the power generation equipment and materials handling equipment. The Co. divides its activities into two business sectors: Power Systems, e- Power Engineering, which comprises generators for electric power, including low voltage portable generators and medium and high voltage generators and similar machineries; Handling, which includes the manufacturing and distribution of the machinery for handling logistic.

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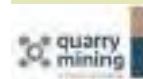
**Putzmeister South Africa (Pty) Ltd.**

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Fax: +27 11 7944119  
Web:  
www.putzmeister.co.za  
E-mail: geysersl@  
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**Agents:**

Algeria - Putzmeister Concrete Pumps GmbH

**QUARRY MINING LLC**



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Tel: +971 7 2689799  
Fax: +971 7 2689499  
Web: www.quarrymining.net  
E-mail: info@  
quarrymining.net

QUARRY MINING LLC design and manufacture to European standards of design and construction and at the same time adopt the same safety standards and features as you would expect if you purchased the equipment from Europe. QUARRY MINING LLC received ISO Certificate 9001:2008 but also ISO Certificate 14001:2004 from Tuv Rheinland/Germany, while all updates are continuously integrated.

**RATEC GmbH**

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Fax: +49 6205 940730  
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**Ritchie Bros. Auctioneers**

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**Rockster Recycler**

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Web: www.rockster.at  
E-mail: office@rockster.at

Rockster Recycler is a specialist in the development and manufacture of mobile crushing and screening plants for profitable recycling of asphalt, concrete and other construction waste, and the efficient processing of natural stone. With innovations such as the patented duplex systems or the unique hybrid crusher, the company repeatedly demonstrates its progressive approach.

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**Rossi S.p.A.**

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**RUD Ketten Rieger & Dietz GmbH u. Co. KG**

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**SDMO Industries**

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**Secmair Fayat Group**

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As a family-owned company- strengthened by more than 60 years of experience- SENNEBOGEN will remain an approachable company. SENNEBOGEN is in a leading position as a globally established innovation driver and manufacturer in the areas of material handling and crane engineering. The focus on the various product segments is consistently applied in development, product management, sales organization and our production plants in Germany. In product development, we focus on availability and reliability of our products.

**SEVA Switchgear Pvt. Ltd.**

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23380233  
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**Shandong Shantui Construction Machinery Import & Export Co. Ltd.**

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Gabon - Gambonaise de Materiels et d'Equipments (G.M.)  
Madagascar - Equipment Provider Solution Co. Ltd. (EPSCO)  
Mali - Heavymat Industry  
Mauritius - Equipment Provider Solution Co. Ltd. (EPSCO)

Niger - Heavymat Industry  
Togo - Heavymat Industry  
Zambia - Delta Auto & Equipment Ltd.  
Zimbabwe - Machinery Exchange

**SMT Group**

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SMT Group is the exclusive distributor of Volvo Construction & Equipment, Volvo Trucks and Volvo Penta in a dozen countries in Central and West Africa. We operate an outstanding own sales and service network with operational agility and entrepreneurial spirit. By engaging in partnerships with our customers, we create value delivering state of the art services and products. Our ambition in both territory coverage and product portfolio is a strong commitment to support our customers growth.

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**Soilmec S.p.A.**

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E-mail: info@soilmec.it

Soilmec is an international company leader in design, manufacture and distribution of equipment for ground engineering, established in 1969. Since its inception, Soilmec has developed safe, innovative, cutting-edge technologies and equipment solutions. Soilmec equipment is used everyday on jobsites all around the world for bridges, motorways, tunnels, underground lines, railways and buildings of all types. Thanks to a constantly upgraded and broadening range of products and a greatly increased production capability; we are an established landmark in the international ground engineering field.

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**SOL Inc. (Solar Outdoor Lighting)**

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Fax: +1 772 2869616  
Web:  
www.solarlighting.com  
E-mail: info@solarlighting.com

SOL is the leading manufacturer of solar lighting solutions since 1990 with 50,000+ systems installed worldwide. SOL develops innovative LED solar solutions that are well-engineered, easy to install and exceed standards for: Roadways, Parking Lots, Parks, Pathways, Trails, Perimeter Security, Signs, Billboards and Shelters. SOL is ISO 9001:2008 compliant.

**Soosan Heavy Industries Co. Ltd.**

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**Specialinsert S.r.l.**

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Specialinsert, since 1974 is Italian leader in the world of fasteners, produces and supplies fastening system for any industries from building & construction, furniture & design, automotive, aerospace, marine and many others. Our standard and customized products are made in Italy and we sell in more than 40 countries worldwide.

**Spiroll Precast Services Ltd.**

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E-mail: enquiries@spiroll.co.uk

Spiroll-the expert partner in delivering optimized precast concrete technology to support global building and infrastructure projects.

**SRS Finlay**

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Fax: +44 2885 567983  
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E-mail: sales@srsfinlay.com

Finlay block making equipment is renowned for its reliability and longevity to meet the requirements of both the small and large scale producer. Located in the United Kingdom the company has been designing and manufacturing equipment to manufacture and handle concrete building bricks and blocks for 60 years.

**Swazi-Trac (Pty) Ltd.**

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Fax: +268 5184556  
Web: www.swazitrac.co.sz  
E-mail: reception@swazitrac.co.sz  
william@swazitrac.co.sz

Sales and services of agricultural and construction equipment, sugarcane mechanization from field to furnace, offers solutions and services.

**Talleres Nunez SA**



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Fax: +34 91 6165030  
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E-mail: tn.international@mallasycribas.com

Talleres Nunez is one of Europe's most important manufacturers of screening media and accessories for the aggregate and mining industries, encompassing all the products related with screening and classification. At the same time we are constantly concerned to maintain the best quality and service that has characterised Talleres Nunez since its very outset.

**Telestack Ltd.**

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Co. Tyrone  
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BT79 0NZ  
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**Terex Minerals Processing Systems**

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BT71 4DR  
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E-mail: [mpsmarketing@terex.com](mailto:mpsmarketing@terex.com)

Terex Minerals Processing Systems provides a complete range of crushing & screening equipment to customers around the world. With over 100 years in the minerals processing industry. We understand your business and are dedicated to offering cost-effective solutions for the long term.

**Terex Trucks**

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E-mail: [peter.thompson@terex.com](mailto:peter.thompson@terex.com)

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**Terex Washing Systems**

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**The Development Initiative Ltd.**

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TDI provides commercial landmine and unexploded ordnance clearance in post conflict environments across Africa and the Middle East. With over ten years of experience, TDI have worked extensively for governmental, non-governmental and commercial organisations in multiple theatres.

**TMS Technical Mechanical Services**

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**Topcon Positioning Middle East and Africa FZE**

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E-mail: [marketing@topcongulf.com](mailto:marketing@topcongulf.com)

Topcon Positioning Middle East and Africa FZE (TPMA) is located in Dubai, United Arab Emirates. TPMA is a subsidiary of Topcon Corporation, a Japanese multinational company who is a world leader in the manufacture of optical and electronic instruments for surveying, construction, machine control, medical and ophthalmic applications. Topcon Corporation was established in 1932 specializing in the manufacture of optical instruments. TPMA was established in November 2010 and business activities started in January 2011 to coordinate the sales and marketing activities of Topcon group in Middle East and Africa for positioning business under Topcon, Sokkia and 2ls brands. Distribution, sales, technical service and support / development of the sales network are coordinated by TPMA as well as the vital feedback flow of information from the Middle East and Africa market to the factory.

**Trelawny SPT Ltd.**

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Trelawny SPT Ltd. is an independent manufacturer of pneumatic tools and surface preparation equipment operating from its headquarters in the engineering heart of the UK in Leamington Spa. For over 60 years, Trelawny has been offering a range of equipment for the preparation of concrete, steel and stone in various industries. For details visit [www.trelawnyspt.co.uk/](http://www.trelawnyspt.co.uk/)

**TVH**

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**Vale**

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**Van Vliet Trucks Holland**

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Van Vliet Trucks is specialist in export to Africa of customized new, used and reconditioned trucks, trailers, 4WD'S heavy equipment, spare parts and all related (project) services, since 1953.

**Varisco S.p.A.**



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Varisco is known around the world for high quality pump design and manufacturing: self-priming and high efficiency semi-open impeller centrifugal pumps suitable for liquids with solids in suspension. They are used in construction sector (drainage, ground water dewatering) and industry, agriculture and naval sectors.

**Visa S.p.A.**

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E-mail: [visa@visa.it](mailto:visa@visa.it)

Visa S.p.A. is a modern Italian company manufacturing around 4000 gensets per year, for continuous and emergency service, ranging from 9 to 3000 kVA, in standard or customized versions (constructions, telecommunication). It has a network of distributors in more than 80 countries in the world. Visa is amongst the most qualified companies in the sector, guaranteeing a highly operational flexibility and qualitative standards which has become a leader in the market for more than 50 years.

**Voith Turbo (Pty) Ltd.**

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Fax: +27 11 4184080  
Web: [www.rsa.voithturbo.com](http://www.rsa.voithturbo.com)  
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Voith Turbo, the specialist for hydrodynamic drive, coupling and braking systems for road, rail, industrial applications and ship propulsion systems supplies Hydrodynamic Fluid Couplings; Safety Couplings and Overload Devices; Connecting Coupling Technology; Hydraulic Disk Brakes; Conveyor Belt Motion Monitors; Cardan Shafts; Internal High Pressure Gear Pumps; Keyless Locking Elements; Shaft Mounted Speed Reducing Gear Boxes and Industrial Thruster Operated Drum Brakes to the Mining Industry.

**Volvo Construction Equipment**



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Uganda - Auto Sueco Ltd Kenya  
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**Volvo Penta**

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Volvo Penta, with more than 4,000 dealers in over 130 countries, is a world-leading and global manufacturer of engines and complete power systems for both marine and industrial applications. The engine program comprises diesel and gasoline engines with power outputs between 10 and 900 hp. The Volvo Penta Industrial engine range covers: diesel engines for electrical power generation, 50 and 60 Hz and industrial diesel engines for different stationary and off-road applications. These engines have now been developed to meet future stringent exhaust emission levels. Volvo penta is part of the Volvo Group, one of the world's leading manufacturers of trucks, buses, construction material & equipment, drive systems for marine and industrial applications, aerospace components and services.

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**Vortex Hydra S.r.l.**

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Web: [www.vortexhydra.com](http://www.vortexhydra.com)  
E-mail: [vh.sales@vortexhydra.com](mailto:vh.sales@vortexhydra.com)

Based in Italy, Vortex Hydra have obtained the enviable reputation of being world leaders in the specialist field of concrete roof tile manufacture. Renowned for their "state of the art" large scale, fully automatic production plants, the company has applied its expertise in developing the new Uno Evoluzione lower volume affordable plants.

**Wacker Neuson (Pty) Ltd.**

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**Wonder Moldplast Pvt. Ltd.**

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## Promix from Carmix

Specialists in self-loading concrete mixers, Carmix has introduced digital technology to innovative working with concrete. Its new device, Promix, enables instant control of the mix design, with data available in real time for effective monitoring and increased quality.

Promix is the next-generation device which allows measurement of all concrete parameters for immediate monitoring of its characteristics, is available for the company's 5.5XL, 2.5TT and 3.5TT models. Together with the Load Cells weighing system, already available on request, Carmix machines are now true stand-alone plants for producing concrete directly on the building site.

### A portable analysis laboratory

Promix is a measuring instrument composed of a stainless-steel gauge housed inside the cement mixer and powered by a solar panel, with a display in the cabin which receives information in real time. The sensor provides data regarding slump, temperature, humidity, and cement-

mixer rotation speed, as well as featuring a 'mix-ready' indicator. All the data are updated every ten seconds and sent to the receiver which, thanks to an intuitive display, gives the operator details of all parameters of the concrete being prepared. This information can be saved to an external computer or sent to other mobile devices over the GPS network.

### A new frontier for a perfect mix design

The ability to monitor numerous parameters quickly and effectively allows direct control over product quality and ensures that this quality is maintained over time, for every batch. Having instant data to assess durability, workability and resistance therefore becomes a competitive factor, because it eliminates the time necessary for analysis and allows preparation of concrete which is perfectly in line with legislation or with the particular requests of clients.

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

## Powerful, durable and productive - Cat's new 340D2 L

The Cat 340D2 L hydraulic excavator, replacing the 340D L, builds on the productive performance and durability of its predecessor with a more refined hydraulic system and a fuel-efficient Cat C9 engine. With an operating weight of 40,270kg (88,780lb), it features massive structural components; heavy-duty undercarriage; a selection of booms, sticks, and work tools for optimum versatility; and a spacious, comfortable cab with low-effort, pilot-operated joysticks and a pressurisation system for a dust-free environment.

The 340D2 L's 200kW (270hp) C9 engine, with a field-proven reputation for powerful, reliable performance, is an estimated seven per cent more fuel efficient than the predecessor engine. Fuel savings result from an isochronous engine speed and torque control system that reduces engine speed during no-load or light-load conditions, as well as from a new electric pressure sensor in the implement hydraulic system that can detect pump load demand precisely to improve system efficiency.

Front linkage for the 340D2 L is designed for flexibility, high production, and efficiency in a variety of applications. The 6.5m (21.50ft) heavy-duty reach boom is available with a 3.2m (10.50ft) heavy-duty general purpose stick. In addition, a mass excavation front linkage uses a 6.18m (20.25ft) boom which can be equipped with either a 2.55m



The Cat 340D2 L is fuel-efficient, offers low operating costs, long-term reliability, and hydraulic performance

(8.33ft) or a 2.15m (7.05ft) stick for use with high capacity buckets.

For operator comfort and convenience, the ergonomically designed cab is pressurized with filtered air to keep the interior clean in dusty working environments, and the cab is equipped with standard air conditioning. The monitor is a full-color LCD that presents an intuitive interface for the operator to observe the machine's operating status; information is displayed in 28 languages to meet the needs of a diverse work force.

Most routine maintenance points for the 340D2 L are easily and safely accessible at ground level, with large service doors in the upper structure providing access to hydraulic pumps, pilot filter, fuel filters, and cooling components. A centralized greasing block facilitates lubrication of difficult-to-access areas. A reserve tank and drain cock are attached to the radiator for simplified service. Ports for the 340D2 L's S-O-S (Scheduled Oil Sampling) system allow conveniently drawing samples from circulating fluid.

## An easy mixer to move and accommodate

Saving space also means saving time – and money. With more than 50 years of experience in the sector, Lino Sella World offers state-of-the-art production of cement mixers, mortar machinery and building equipment. Its latest version of cement mixers packed in a box is designed to make

transport easier: the machines are disassembled and packaged in a cardboard box that makes it possible to considerably reduce the space required for storage. Company owner Paolo Sella said, “We had the idea of producing a cement mixer that can be disassembled after observing the operative

needs of our dealers. The feedback confirms the economic savings in terms of transport - 40 per cent of space saved that, from initial observations, has an impact on overall costs and many other factors.”

Ease of assembly is guaranteed by the fact that assembly only requires the use of bolts and does not require any welding. In addition to the reduced dimensions, its advantages are also related to the new cab that can be supplied with any type of engine - diesel, electric or spark-ignition (the engine does not need to be removed from its housing for maintenance), whereas the packaging makes sure that the operators receive the cement mixers in perfect conditions.

Lino Sella's commercial targets are evolving continuously, with references such as Miami, Qatar, the Arab Emirates as well as the emerging markets of Africa and Asia. The range of Lino Sella building equipment includes all different types of cement mixers, from traditional to silent, hydraulic, with capacities between 140 and 1,500 litres, as well as mortar machinery, plastering machines and plaster sprayers.



The new compact cement mixer by Lino Sella makes it possible to reduce required storage and transport space by 40 per cent

## Dry cutting on hard tiles with a Jaguar blade

Hard porcelain tiles are becoming an increasingly-popular option for homeowners in South Africa, due to their robust and aesthetically-pleasing characteristics. A range of 115mm Jaguar diamond saw blades simplifies the challenging task of accurately cutting these tiles. An innovative new design makes Jaguar the first blade capable of achieving chip-free dry cutting of porcelain and ceramic tiles. It has been introduced locally by Diamond Products - a leading specialist in the manufacture, assembly and sale of diamond tools and equipment for industrial applications.

The trend of utilising hard porcelain tiles is a challenge for



The Jaguar blade streamlines the cutting process by improving efficiency and minimising costs associated to wastage.

professional contractors such as plumbers, tilers and builders, who consume considerable amounts of water during the cutting process in order to avoid costly chipping.

Diamond products director Brian Clark explained, “The unique and patented Jaguar blade segment design offers improved versatility of application, increased cutting speed and improved cooling to enable dry cutting on porcelain and ceramic tiles, in addition to granite, marble, travertine and artificial stone.



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# Making roads work with retaining-wall tech

Specifying stable systems for a key highway infrastructure project outside Durban, South Africa

Consultancy services firm SMEC South Africa has been closely involved with the detailed design and project supervision of an innovative mechanically stabilised earth (MSE) wall system on the Ballito Drive road upgrade project in Durban, KwaZulu-Natal. This was one of the first and largest applications of this technology in South Africa to date.

The design of the MSE walls involved close collaboration between SMEC South Africa, Kaytech Engineered Fabrics and Tensar. Developed as an alternative to traditional retaining wall options, the Tensar TW1 system has been introduced to the South African market by Kaytech.

SMEC South Africa undertook the final design checks to ensure the overall stability of the system and its compliance with project specifications and local codes. SMEC South Africa's section manager: geotechnics, Fernando Pequenino explained, "These included integration of the system with the new roadway and New Jersey barriers along the top of the wall. We also had to take cognisance of the overall geotechnical conditions."

## Reinforcing and retaining

The geotechnical investigation revealed that the site was underlain by thick coastal dune Berea deposits at the precise location of the MSE walls, with bedrock at depths exceeding 30m. The design of the MSE walls was based on SANS207: 2006: 'The design and construction of reinforced soils and fills', which provides applicable guidance for the design of reinforced walls.

"A reinforced soil structure must be checked for external and internal stability," said Pequenino. External stability takes into account sliding, bearing/tilt and overturning of the MSE block. Internal stability involves essential checks for failure against pull-out of the geogrid, as well as failure against rupture. Ancillary checks include compressive block failure, block rotation and bulging and connection failures.

"The type of geosynthetic reinforcement selected must also take into account the soil properties of the reinforced, retained and foundation materials," Pequenino remarked. These soil properties contribute to determining the tensile strength, stiffness requirements and spacing of the geogrid.

A key consideration of the design was to optimise the use of lower-quality fill material, while simultaneously reducing the quantity of lateral support required in cutting back and benching into the existing roadway (that is, the back excavation slope).

However, the use of such lower-quality fill material meant that the strip lengths had to be increased, which implied either an increased cut or the use of a near vertical back excavation slope requiring the use of shotcrete and ground anchors or nails.

SMEC South Africa geotechnics engineer Frans van der Merwe said, "After a number of design iterations, the final design of the 11m-high



MSE walls comprise fill material with horizontal layers of reinforcing elements

wall comprised the use of 7m-long strips, a granular (COLTO G6) backfill for most of the height and a 1m-thick granular soil-raft foundation."

Berea sand was used throughout for the upper 3m of the 11m wall and the 5m-high wall.

## Building at Ballito

Ballito Drive is located about 40km north-east of Durban. The scope of work on this project entailed widening the two-lane single carriageway to a three-lane dual carriageway. The undulating topography of the site meant that earth-retaining structures had to be built to bring the extra lanes to level.

The lane widening had to be carried out within the road reserve to eliminate encroachment into existing developments. As van der Merwe confirmed, the company proposed "two near-vertical MSE walls of 11m and 5m, covering a total length of over 400m and 2,000m<sup>2</sup>" in order to achieve this goal.

MSE walls comprise fill material with horizontal layers of reinforcing elements. This may take the form of sheets, grids, strips or meshes. These metallic or polymeric reinforcing elements are capable of sustaining tensile loads and the effects of deformation or soil strains developed in the fill, part of which is transferred to the clad face through some form of positive connection.

Main contractor Afriscan Construction opted for the Tensar TW1 proprietary MSE system, introduced into the South African market by Kaytech. The system provides a number of benefits over other block and mechanically stabilised earth systems.

These include the effective connection between block and geogrid, a near-vertical face inclination, locally manufactured blocks, aesthetic appeal and labour-intensive construction, which eliminates the use of heavy lifting equipment. ■



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# LIEBHERR

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# Rehabilitating the R61 in SA's Eastern Cape

The ability to work across a range of industries on projects that require a diverse set of skills has ensured the sustainability of Murray & Roberts Infrastructure. The company continues to receive a wide variety of project awards in the roadworks and civils arena, a testament to its ability to carry out logistically complex infrastructure projects.

According to Eric Wisse, managing director of Murray & Roberts Infrastructure, recent awards for the roadworks teams include a 28-month contract to rehabilitate a section of the R61 in the Eastern Cape region between Bizana and Port Edward (the Magusheni/Mzamba area), led by contracts

director Jay Juganan.

Murray & Roberts Infrastructure has participated in some of the largest and most significant construction projects Africa and the Middle East. These include the Gautrain Rapid Rail Link and Cape Town Stadium in South Africa, and the Burj al Arab Hotel and Dubai International Airport in the UAE. Within Africa, Murray & Roberts is recognised for its leadership in engineering and construction services, and has delivered infrastructure throughout South and Southern Africa for more than 110 years. Its commitment to African infrastructure is underpinned by its engagement in and underpinning of the integration of transport and logistics, power

and energy, water and sanitation, telecommunications, health and education, accommodation and facilities, and mineral extraction and beneficiation across the continent and around the globe.

Infrastructure owners rely on the various stakeholders within the built environment to develop, finance, design, engineer, construct, operate and supply inputs for delivery of infrastructure. Utilising its long track record of successfully completed road projects in the Eastern Cape, Murray & Roberts Infrastructure is working on the upgrading of a 27.5km portion of National Road R72 Section 3 between Port Alfred and the Fish River for SANRAL (SOC) Ltd. The project is due for

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Work underway on the Murray & Roberts Infrastructure N4 Project



completion in late August 2018 and includes the widening of the Rietrivier Bridge at the 13.2km mark of the project. Following on the successful completion of two back-to-back contracts on the N1 outside Hammanskraal for Bakwena Platinum Corridor Concessionaire, the company has secured rehabilitation work for the Northern Toll Roads Venture (NTRV) on the same national roadway between Bela Bela and Polokwane. This work will be done in Joint Venture with Grinaker-LTA and will be the final rehabilitation work for this concession.

**Ongoing roadwork**

Work on the Murray & Roberts Infrastructure N4 project is progressing according to schedule on the section of this major national route near Middelburg, just east of the Rockdale interchange, and ending just west

of the Arnot interchange. It involves increasing the carrying capacity of an 18 km section of the toll road by constructing a new double-lane eastbound carriageway, with associated civils infrastructure such as a bridge overpass at the Klein Olifants River and various other structures.

Site establishment on the iconic Grayston Road Pedestrian Bridge for the Johannesburg Development Agency has begun. This bridge will link Alexandra township with the business hub of Sandton.

**Working with water and wind**

Based on its capabilities within the water and waste water sectors, the company has secured the Orange Farm 33mn litre reservoir contract. Contracts director, Lucas Baars said this award follows on the successful completion of the 20ML water

reservoir and 1.2ML water tower in Lanseria for Joburg Water.

Work is ongoing on a number of wind farm contracts for Mainstream. The first bases for Noupoort’s 35 wind turbine generator wind farm have been poured and site establishment has begun for the Loeriesfontein and Khobab wind farm contract. Each of these wind farms will have 61 wind turbine generator foundations, with a combined construction period of 30 months.

The company has also been awarded the contract for the design and construction of the civil balance of plant for the De Aar 1 Maanhaarberg Wind Farm for Longyuan Engineering South Africa (Pty) Ltd. When completed, this wind farm will contribute 100 MW into the national grid utilising 66 wind turbines. ■



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# Superior structured surfaces

Why strength-to-weight ratio is critical to the construction of floor grating

The strength to weight ratio of floor grating is an important consideration. Used in a number of industries, from process plants to wastewater treatment facilities to petrochemical facilities and oil refineries, industrial floor grating needs to be durable and fit for purpose.

#### A capacity for quality and safety

As the single largest producer of floor grating in Africa, Andrew Mentis has built an extensive database of customer applications that focus on quality and safety. All manufacturing is undertaken at an advanced facility in Johannesburg, South Africa, in adherence to stringent quality processes, with close tolerances being maintained.



Mentis floor grating is used extensively in the mining industry

Andrew Mentis RS40 floor grating is engineered to take a specific loading, which ensures the safety of people walking or working in those areas. By carefully reviewing the technical specifications and other information relating to the load bearing capacity of the product, superior floor grating is produced for mezzanines, catwalks, platforms and ramps.



The non-slip characteristics of Mentis



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Andrew Mentis RS40 floor grating

#### Products for processing

Prior to the start of the manufacturing process, a technical representative from Andrew Mentis meets with the customer to determine their precise needs and ensure maximised structural integrity. Thereafter the processing department compiles the layout of required products according to structural drawings supplied.



**There are specific non-negotiable factors that Andrew Mentis takes into consideration during the production of floor grating; the manufacturing method used by the company ensures that the transversals are positively and permanently locked to the bearer bars.”**

There are specific non-negotiable factors that Andrew Mentis takes into consideration during the production of floor grating. The manufacturing method used by the company ensures that the transversals are positively and permanently locked to the bearer bars.

The compressive pressure locking method at the intersections is engineered to use the full depth of the bearer bar and the grating panels are flat, square and untwisted with a pitch of 40mm by 40mm. As a result there are no cracks or crevices at intersections which could harbour corrosion.

The grating's non-slip characteristics are created by the positive raised sections that produce multi-directional obstructions on the top of each bearer bar, allowing for a far larger surface contact area.

Mentis floor grating is also available with a serrated profile for those customers that have application for this. The company also supplies moulded fibre glass grating which is used in corrosive environments where steel cannot be used. ■



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# Rotating machines that offer added versatility

The multiple models in the Magni series provide African contractors with all the capabilities of a compact lifting device



The versatility of today's compact machines with all their available attachments, including pallet forks and a safe access platform in the case of Italy's Magni Telescopic Handlers\*, is now recognised by construction contractors throughout Africa. These are essentially highly manoeuvrable cranes equipped with a rotating function along with a rigid telescopic boom - which incorporates protected hydraulics within its multiple sections - that offer a great deal more. Such as electronics soft ware that ensures a safe load/height/extension combination cannot be exceeded even on uneven ground.



## How the HTH meets industry requirements

Reaching to a height of well over 30m, the maxi-spec R5.35S machine which was launched at Intermat this year is believed to be the highest rotating telescopic forklift available anywhere in the world – a boon to building contractors who want to reach maximum height with a serious load anywhere. The company also offers a number of heavy duty HTH models which are designed to meet the special lifting and access requirements of the mining and energy-producing industries.

Key features of the medium-size RTH range (12 recently introduced models of varying handling capacities in terms of the available load chart , including four in the innovative Smart series which was extended this year) include a registered design of cab which incorporates a unique touch-screen control surface in place of the normal hands-on panel. The images displayed all correspond to the machines' special application software. Joystick control is also available via CAN BUS for all movements of the turret, boom and attachments.

Other features of the series' operating environment include a movable steering column and complete climate control.

## Reaching out with the RTH

Magni's newly designed, compact outrigger-based stabilising system incorporates both pivoting and telescoping functions to increase the RTH models' lifting performance and safety under all conditions. Built-in software controls an active dynamic "Super Scissor" design which can take full account of uneven ground conditions which may necessitate varying lengths of the four extended legs.

These machines offer a choice between JCB Ecomax (Tier 4i) and Daimler M-B (3B) engines. Chip-enabled Bosch Rexroth transmissions permit on-road travel at up to 40km/hr. All models in the new rotating range are assembled on one of two types of chassis, featuring a rigid structure to eliminate twisting and increase stability, features

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which are augmented by the extremely sophisticated design of the stabilising outrigger system itself.

The RTH series' built-in load sensing hydraulics comprise a Bosch Rexroth variable displacement pump (main), latest-generation Sauer Danfoss valves incorporating electro-proportional control, and instantaneous spool-position detection in accord with the most up-to-date electronic-control safety requirements.

All the RTH booms are rigid and sturdy, equipped with exclusive (patented) hydraulics operating at the head end. The company's neat and compact quick-fit attachment system (also protected by patent) reduces the end-boom weight/moment and thereby facilitates both greater safety and more sensitive control of all attachments. Thus it is completely impossible for a work platform, for example, to detach from the boom when it is in 'lifted' mode.

RFID is built into the boom head to permit automatic recognition of the attachment itself. The load chart is consequently selected by the machine which is pre-disposed to limit the load/length combination that works with that specific device.

All the rotating handlers' 24V electrical/electronics systems incorporate IP67 protection against unwanted penetration by dust, rainwater etc. The telehandlers are controlled by a CAN BUS circuit that transmits all necessary data about all the electronic components fitted on board, permitting all information about the performance of the engine, transmission and load monitoring systems to be displayed on the user-friendly touch screen. Magni says it is the proprietor of the software which actually enables this, allowing the operator to handle the machine in an intuitive way via the flow-sharing system, with engine speed automatically adjusted to suit all sensitive movements of the attachment/platform as required.

Four special 'Smart' models (RTH 5.18/5.21/5.23 and 5.25) have been developed within the past year in response to the need for compact, user-friendly machines that permit work at specified heights in complete safety with high lift, reach and access performance. ■

\*visit [www.magnith.com](http://www.magnith.com) or e-mail [commercial@magnith.com](mailto:commercial@magnith.com)



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# Reporting and repairing injection systems

South African Caterpillar customers reduce downtime with in-field fuel system diagnostics

**R**eef Fuel Injection Services is helping to reduce the downtime of its Caterpillar customers by offering an in-field fuel system diagnosis.

The company's operations manager, Warren Hauser, said, "We can pinpoint what the exact problem is, right down to a specific faulty fuel injector which we can then remove and rebuild, as well as recalibrate the rest. This provides a massive cost-saving for our customers in that we are able to test injectors individually, rather than having to replace or repair a full set."

"This is another example of how Reef Fuel Injection Services' significant investment in the latest repair and diagnostic technology and equipment helps customers reduce their maintenance and repair costs substantially."

#### Critical service

Incorrectly calibrated or out of specification fuel injectors can result in major problems in terms of fuel efficiency and consumption, and therefore it is important to ensure that these critical components function optimally at all times.

"This is a unique service offering that places us at the forefront of the automotive repair industry in South Africa," Hauser said. The service is available for Caterpillar common rail and electronic fuel injection systems, as well Caterpillar HEUI (Hydraulically Actuated Electronically Controlled Unit Injector) systems.

"An added benefit for customers ensuring their fleet remains operational is that we offer a service exchange on injectors from C6.6 to C32. Instead of having to wait two days for the injectors to be pulled and checked, we

## Effective lubrication and maintenance is key to long-term efficiency

**A**lack of maintenance on electric motors in African industry has resulted in excessive failures, which ultimately lead to unnecessary downtime costs and production stoppages. According to Craig FitzGerald, COO at wear control specialist Filter Focus, the majority of smaller scale electric motors operating locally are never greased or lubricated. He said, "In my experience, most maintenance engineers are not even aware that there are bearings on electric motors. As a result, no lubrication is done, and costly and easily-avoidable failure occurs."

FitzGerald added that an electric motor is typically lubricated once at the manufacturing facility. "Generally it is a medium to low quality lubricant that is applied once only, and this is simply not sufficient for the operational lifespan of the motor. Due to the fact that these motors are often found in confined and hard-to-reach places that are located at-height or under moving conveyor belts, they are



Rustprufe is ideal for gears, shafts and motors

unwittingly neglected by site supervisors too," he said. Lubrication softens the harsh metal-to-metal contact between gears. During this contact, air bubbles are formed when cheap, low-quality lubricants are applied. FitzGerald observed that this is one of the countless forms of destructive contamination. He said, "There is often the belief that using cheaper lubrications will save the operation money, however, the expenses associated with the long-term maintenance and wear problems will prove to be exceptionally costly and disruptive."

Due to the harsh operating conditions in Africa, motors and gearboxes become particularly susceptible to rust, corrosion or deterioration. FitzGerald said, "These threats arise from the climate, dirty operational environments, as well as low level artisans and cleaners that spray the equipment with water during cleaning, inadvertently damaging the equipment, due to a lack of training and knowledge."



Rustprufe can be applied in applications as a permanent anti-corrosion coating



can put the next set in and the vehicle can be up and running almost straightaway. We welcome any enquiries as to the full range of Caterpillar equipment that we cover," Hauser remarked.

Reef Fuel Injection Services offers the benefit of a full diagnosis and reporting capability, with any rebuild and recalibration service conducted to stringent standards. Hauser said, "That is key to our service offering, so customers have total peace of mind that repairs are carried out according to strict specifications using the latest equipment and technology, and with the highest quality workmanship."

Reef Fuel Injection Services is a subsidiary of heavy diesel engine and component remanufacturer Metric Automotive Engineering. The company tests, repairs, remanufactures and calibrates all makes of diesel injectors and injector pumps and is a specialist in CRI systems. The company is an authorised service agent to all five leading fuel injection systems - Bosch, Denso, Delphi, Stanadyne and Zexel - and is acknowledged as a specialist in Cat fuel injection systems. The company has a strong ethos of investing in both quality equipment and expert personnel. This attitude towards customer



In-field fuel system diagnosis with a CAT C7 injector

service and constant product innovation has sustained the company since its inception.

Parent company Metric Automotive Engineering is able to refurbish large diesel engine components and also offers services

such as cylinder head remanufacturing, cylinder block line boring, milling, honing and boring, camshaft grinding, crankshaft grinding, engine assembly and dynamometer testing. ■

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# The key to fire safety efficiency

How construction specifiers can support building owners to maximise both the energy and maintenance efficiency of their property safety systems

**F**ire safety and emergency lighting technology is a key feature of the modern built environment, helping to ensure the wellbeing of building users, and it has long been compulsory across Europe to have this equipment installed in public buildings. Following suit, a growing number of African governments have introduced legislation of their own. In recent years, for example, the South African Part T (Fire Protection) of the National Building Regulations has come into use. However, many businesses are also going one step further to ensure the safety of their staff and customers by actively adopting advanced European legislation as a best practice standard. One such element of the law in place in European countries being adopted by businesses across Africa is a requirement for building owners to perform regular maintenance of their property's equipment to ensure it is working properly.

Poor and irregular maintenance of life safety equipment has a number of consequences for building owners, not the least of which is the increased risk of false alarms. False alarms don't just cause disruption to the building's residents, they also divert fire and rescue services from attending genuine fire incidents. According to recent figures from the UK Government, the country's fire and rescue services attended nearly a quarter of a million false alarms over the last two years, caused by faulty fire safety systems [Hochiki to provide a figure for Africa if available]. This poses a significant risk to the safety and well-being of building occupants.

Occupant wellbeing and the financial cost of false alarms are just as relevant to building owners in Africa as they are to those in Europe. So how can specifiers support building owners to take care of their fire

safety and emergency lighting systems as efficiently as possible?

## Streamlining maintenance

Specifiers can help building owners ensure regulatory compliance while optimising operational efficiency is by considering the particular maintenance needs of their proposed life safety equipment.

Some technologies require more care and monitoring over their lifetime than others. Some equipment may also be vulnerable to unexpected performance issues that can lead to unplanned downtime or even expensive repairs. Installing such products will cost building owners more time and money to maintain, increasing their total cost of ownership (TCO).

However, by selecting solutions that have minimal aftercare needs, specifiers can help streamline these processes for building owners. Opting for equipment that comes with a comprehensive warranty, for instance, can lower the cost of unplanned maintenance and repairs, while installing self-testing fire safety and emergency lighting technology can cut the time building owners have to spend looking after their systems.

## Cutting energy consumption

The energy use of a property's emergency lighting technology is another key factor that specifiers need to address to support building owners in reconciling efficiency with occupant safety.

A system that requires more electricity to operate will end up costing considerably more over its lifetime than one that consumes less. In addition, building owners in rural or emerging economic areas may find themselves vulnerable to brown-outs, when mains electricity is severely reduced for part of the day, relying on personal generators to

limit disruption. With this in mind, emergency lighting that uses a lot of electricity will be a significant drain on resources, affecting the performance of other key equipment in the building.

There are more energy-efficient lighting solutions that can considerably cut operating costs for building owners over their lifetime. Lighting systems incorporating low-voltage cabling and LEDs, for example, consume just five per cent of the energy of standard fluorescent tubes, significantly reducing their TCO. Moreover, LED light fittings only need five per cent of the lamp changes needed by traditional luminaires, further streamlining maintenance for building owners.

## Looking for support

Regular maintenance of fire safety and emergency lighting systems is a necessity for building owners to ensure their equipment continues to offer the performance needed to comply with legislation being introduced across Africa. To enable them to achieve this aim with minimal impact on operational efficiency, specifiers need to choose the most appropriate equipment for the building in question.

There is plenty of support available from life safety specialists to guide them in this goal. For example, Hochiki Europe has recently launched an online efficiency calculator that can help users assess the performance of existing equipment and recommend upgrades to maximise efficiency.

Making use of such advice can enable specifiers to select the best technology for a building's needs, not just to reduce operating costs for owners, but to safeguard the health and wellbeing of its users too. ■

*Robert Head, Africa regional sales manager at Hochiki Europe*



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# Mixtures for making new facilities

As a leading construction chemicals specialist, the Chryso Southern Africa Group continues to implement plans that will see customers across the continent having direct and immediate access to both the entire product range as well as a team of technical product specialists.

An example of this is the establishment of a subsidiary company, known as Chryso Eastern Africa, in Nairobi, Kenya.

## An established supplier

The Chryso Southern Africa Group has established a distributor network and distribution outlets across the African continent and Indian Ocean Islands for its concrete and cement admixtures and ancillary products.

Chryso South Africa supplies a vast range of products to the readymix, precast, mining, cement and construction industries that are produced at three of its manufacturing facilities operating in Johannesburg, Cape Town and Durban.



Chryso Southern Africa's operation in Jet Park, Johannesburg.

The company is also the exclusive distributor of Lanxess pigments for the construction industry in South Africa. With the capability to service roughly 80 per cent of the African continent, Chryso products

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Chryso supplies a vast range of products to the readymix, precast, mining, cement and construction industries.

are readily available and can be transported to customers using the most appropriate mode of transport, road, air or sea freight.

Chryso Southern Africa has amassed an extensive reference base of projects, with product supplied into Africa for more than 15 years, through close partnerships with its customers.

This is achieved through the company's ability to assess each project on its own merit and then recommend a fit-for-application solution that takes into account all aspects such as climatic conditions, raw materials (including aggregates and cement), the time allocated for the project schedule and any other relevant factors that may affect the timeous completion of the contract.

#### Research for specialised service

In addition to its own experienced technical team Chryso Southern Africa also has access to extensive global research and development facilities.

An in-house laboratory in Johannesburg, where specialised mix designs are tested to determine the most appropriate solution for



Chryso Southern Africa operates an in-house laboratory in Johannesburg, where specialised mix designs are tested to determine the most appropriate solution for each project

each project, is complemented by alliances with a number of concrete laboratories in various African countries. Chryso Southern Africa is becoming the company's springboard into the African continent and Bauma will provide the company with the opportunity to showcase its capabilities and extensive range products to the African market. ■



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# Ultra broadband in the middle of nowhere

Nearly everyone now owns one, but very few people are aware that behind the plastic screen and shiny case of their smartphone is an array of precious metals. An iPhone 5 for example contains \$1.58 of gold, \$0.36 of silver, \$0.05 of platinum and \$0.12 of copper and many “rare earth” elements like Yttrium, Lanthanum, Neodymium, Gadolinium, and Europium.

LCD TVs, electric cars, indeed any modern-day electronic product contains similar elements and there is now huge demand on mines from around the world to deliver these ores in high quantities.

This demand means that the global mining industry is booming. New sites are coming online while existing locations are expanding through deeper excavations.

Many of these mines in Africa, South America, Asia and Australia are located in remote areas. As a result, reliable and effective communications networks are essential for safe and efficient mining operations and processes.

In-pit Autonomous Haulage Systems (AHS), Autonomous Drilling Systems (ADS), driverless freight train control, anti-collision systems, in-pit proximity detection, in-pit CCTV, high precision GPS, and an array of telemetry systems and sensors are now integral components of successful mine sites around the world. They are also connected to command and control centres, which in some cases are around 1000km away from the mine.

## From legacy to LTE networks

Many legacy networks based on Wi-Fi, 2G, 3G, proprietary VHF, or PMR can no longer meet these systems’ demand for uninterrupted radio coverage, quality of service (QoS) management, and security requirements in the changing topography of an open-pit mine.

They are also unable to deliver the bandwidth required for comprehensive CCTV networks. This was the case at Rio Tinto’s West Angelas mine in the Pilbara region of Western Australia. Here Wi-Fi trailers set up around the mine were no longer up to the job of



Modern LTE communications networks serve remote mining operations with ease

supporting the mine’s mission-critical applications, and were potentially putting its performance in jeopardy. This led to a rethink of the in-pit, pit-to-port, an in-terminal port radio communications infrastructure, with Rio Tinto tasking Alcatel-Lucent to deliver a private single and converged ultra-broadband 4G LTE network for its pit fields, railways, and ports.

LTE delivers numerous benefits to the mining industry. These include the bandwidth required for video services, even in areas with a disturbed radio environment,

dependable QoS management, as well as intrinsic resiliency and cyberprotection, and a low latency of 10ms, which is essential for mission-critical applications requiring fast response times.

Since coming online in August 2013, the performance of Rio Tinto’s LTE network has led some observers to comment that they have a better mobile signal in the middle of the mine, hundreds of miles from the nearest city, than in their office.

## Meeting the needs of machines

An LTE network is also contributing to reduced operating costs by using an IP protocol to support all applications on a single converged radio network, and improvements in operational efficiency. And with the solution scalable to accommodate new technologies and services, LTE technology is well placed to meet the M2M demands of the mining industry. ■

*Thierry Sens, marketing girector transportation segment, Alcatel-Lucent*

“**Rio Tinto’s LTE network offers a better mobile signal in the middle of the mine, hundreds of miles from the nearest city, than in city offices**”





**Jaco du Toit** - 12 years



**Christina Ramotsabi** - 9 years



**Ricardo Montoya** - 25 years



**Rejean Foisy** - 25 years



**Godwin Dzweirow** - 26 years



**Noel Mills** - 33 years



**Anthony Yell** - 33 years

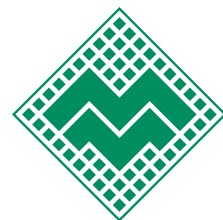


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# Amplats chute upgrade at Mogalakwena North

**W**eBa Chute Systems recently completed a chute upgrade project at Anglo American Platinum's (Amplat's) Mogalakwena North Mine. The chutes were installed originally in 2006 and subsequently lined with ceramic tiles in 2013 in order to cope with the sticky fines material.

WeBa Chute Systems project manager Ted Cruickshank said, "This project showcased the total solutions approach adopted by WeBa Chute Systems in being able to respond to specific client problems and challenges.

**From temp bypass to upgraded transfer**  
At the beginning of 2014 WeBa Chute Systems installed a temporary bypass leg on one chute



WeBa Chute Systems are providing the most appropriate material transfer solution at Mogalakwena North Mine

in order to bypass the material onto a stockpile. Following this, under the auspices of Worley Parsons RSA, it was awarded a contract

to remove the temporary leg and place a permanent fixture on both chutes.

Cruickshank said, "Slight modifications had to be carried out to the existing chutes in order to incorporate the new legs, feeding the outgoing conveyors at various angles. Therefore, this was quite a complex project that required a lot of time and ingenuity on the part of WeBa Chute Systems in coming up with an appropriate solution."

The incoming belt was a 1 050 mm conveyor with a speed of 2 m/s and a material bulk density of

2.6t/m<sup>3</sup>. The maximum material size was 10mm and a required tonnage of 600t/h. However, a maximum tonnage of 1,000t/h is



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scenario, can even result in tearing of the belt. In addition to the impact, excessive spillage also results in increased maintenance requirements. This has a direct bearing on both productivity and costs, due to unnecessary downtime and component replacement."

**A cascade design**

The Weba Chute System is based on a 'supertube' or cascade effect that results from those occasions when material runs on material. This highly innovative approach to the dynamics of bulk materials handling results in significant cost savings for clients. It also showcases the considerable expertise and experience that allows Weba Chute Systems to be able to engineer solutions for specific client requirements.

To date the company has engineered over 4,000 transfer chutes that are operating successfully throughout the global mining industry. Irrespective of belt speed, belt width, material size, shape or throughput, the Weba Chute System eliminates the problems associated with conventional transfer chutes as well as providing a cost effective and environmentally friendly solution for material transfer. ■

possible with the solution provided by Weba Chute Systems. Cruickshank explained that Weba Chute Systems' upfront involvement in projects right from the design stage helps to mitigate many of the problems associated with transfer points. He said, "Consulting with us during this vital phase means that we can bring the experience and expertise we have gained during thousands of installations to bear on an individual project."

It also eliminates the situation where transfer points need to be redesigned after installation because certain critical factors have not been taken into account. One of the most common problems associated with conventional chute design is where the product drops from any height directly onto the belt. Cruickshank said, "Such a basic design fault causes the most catastrophic damage and cost, as the impact of product falling directly onto the belt results in excessive wear and, in the worst-case



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Our qualified and highly motivated team of approximately 150 professionals allows Quarry Mining LLC to offer solutions with no limitation to project size. Quarry Mining LLC is able to design, manufacture and install mineral processing plants, bulk handling systems and environmental technologies in any plant configuration necessary, to meet customer requirements and applications as partial or complete turnkey plant operations.



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# Minerals

## CrC wear plates improve operational efficiency and reduce maintenance costs

The manufacturing of Chromium Carbide (CrC) Liner Plates has vastly improved since the product was first introduced to the market 35 years ago, with top liner plate expert **Rio-Carb** playing a leading role in advancing technology and developing innovative variations in manufacturing methods. What's more, Rio-Carb is the only CrC liner plate and equipment manufacturer whose welding standards are compliant with the internationally-recognised American Welding Society (AWS).

Rio-Carb managing director Martin Maine reveals that local South African welding standards do not make provision for CrC welding, which requires specialised techniques. He warned, "The welding of CrC faces risks if not carried out in accordance to certain specifications."



CrC can affect the quality, consistency, integrity and wear properties of long life liner plates

Maine indicated that the biggest challenge with CrC is to get the weld beads smooth, as rough welds immediately create more cavities and disturbances to the material flow. Mr Maine said, "Customers need to be wary of companies that do not have certified welding processes as this may cause major future problems."

Rio-Carb moved into a new production factory with state-of-the-art equipment and technology, to provide "CrC designers and users with first-hand experience and detailed information for the application of this unique material", Maine said.

## Simulators for miners

Virtual learning and the use of simulators has become extremely widespread on a global platform. However, research shows that most mining companies do not use simulation to its full capacity. Tony Pretorius, risk manager at the **Murray & Roberts** Cementation Training Academy, spoke recently of a "targeted and holistic approach by applying simulators in a blended learning experience...in line with the situational leadership development model of 'Tell Sell Participate and Delegate'."



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# Health & Safety

## Safe and sustainable fire protection in the mining sector

One of the most imminent risks involved with mining operations is fire, which is a constant threat in numerous applications, ranging from the battery operated head lights used for underground mining, to fuel storage for mobile mining equipment.

A major obstacle to fire safety in the mining industry is that standard dry chemical powder (DCP) handheld extinguishers are specified onsite. Although DCP extinguishers are highly-effective in extinguishing flames, they offer minimal cooling properties. This results in re-ignition of flames, particularly in fuel and rubber fires, thereby increasing the risk of property damage and loss of life. Rubber fires can occur on conveyor belts, tyres, and plastic or rubber pipes. In this scenario, a first responder would typically use a number of DCP extinguishers to subdue the recurring flames, while waiting until firefighters extinguish it permanently.

The powder inside DCP extinguishers also compacts as a result of vibration when placed on a moving vehicle. This compacted powder creates the risk of malfunction when activated, creating further health and safety concerns. As a result, DCP extinguishers placed on mobile equipment need to be serviced more frequently, which results in higher costs for mining operations.



The small quantity of water used also results in little to no redundancy or damage

DCP extinguishers also pose serious operator and environmental hazards too. When used in confined spaces, they can affect operator visibility, and excessive powder inhalation can prove to be fatal. Discharged powder often ends up in water ways and filtration systems, causing contamination or blockages, and the discarding and clean-up process can be long and costly.

### A more effective and environmentally-friendly alternative

Environmental solutions company I-CAT offers a range of Water Mist handheld fire extinguishers. Utilising water as the main agent and nitrogen as a propellant, this handheld range is capable of extinguishing most types of fire, including; rubber and plastic fires; kitchen cooking oil fires; diesel and petrol fires; and electrical fires rated up to 350kV.

Using patented technology from Europe, the atomised mist generated by the extinguisher gradually cools down a hot surface without causing thermal shock. I-CAT fire division manager Andro Gibhard said recently, "It creates a thermal heat radiation barrier between the operator and the fire, thereby preventing the operator from getting burned when operating the extinguisher."

The Water Mist range is environmentally-friendly and ensures greater operator safety. Mr Gibhard said, "Each litre of water amounts to 120 m2 coverage capability, making it extremely safe and efficient. What's more, the small quantity of water used also results in little to no redundancy or damage."



The Water Mist extinguisher range



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# Tools

## SATcase connects oil & gas ops

In the ever-evolving world of the oil and gas industry, ensuring up-to-date communication is vital to aspects of exploration, drilling and production. Dangerous conditions often contribute to volatile situations and the SATcase, a revolutionary new device, can help to improve the safety of all involved on a project by enabling reliable communication.

Because most drill sites are in areas where mobile phone service is poor or even unavailable, the simplest, most cost-effective solution has previously been to employ the use of a satellite phone. However, satellite phones can be bulky and users are often frustrated by the need to carry multiple devices to take care of different tasks.

However, **SATcase** combines the functionality of the common smartphone with the capabilities of a satellite phone into one compact and durable unit, creating the perfect communications tool for both managers and workers. Working in conjunction with an app,

the ruggedised case makes calls simple and seamless. It has also been designed to stand up to the tough working conditions found at drill and exploration sites.

Information can be securely relayed the second conditions erupt that may have long-term consequences, and this enables companies to respond in ways that can save invaluable time and money. Additionally, in the event of a disaster, the device is equipped with multiple emergency functions that can facilitate rescue by land, air or sea. This includes an SOS button, two way rescue communications, online track and trace for live monitoring, silent alarms and infrared strobes.

Jim Thomson, founder and CEO of SATcase, commented, "We've used cutting-edge technology to develop a piece of equipment that will stand up to the impact of extreme outdoor conditions, yet also be capable of exhibiting outstanding performance."

## Bosch impact drill and driver delivers performance at an affordable price

The economical **Bosch** GSB 1080-2-LI Professional Cordless Drill/Driver with impact function guarantees excellent performance in a range of applications. Bosch Industrial Power Tools SA senior brand manager Juergen Lauer noted recently that it is ideal for use on many different materials. He said, "The two-speed planetary gearbox producing 11 Nm of soft torque and 28 Nm of hard torque optimises performance for powerful screwdriving and drilling applications in wood and metal, and impact driving in masonry. What's more, 21 clutch settings also allow the user to fine-tune power delivered by the tool, thereby ensuring that it supports precise work."



The Bosch GSB 1080-2-LI Professional

The longevity of the Bosch GSB 1080-2-LI Professional's operating life is enhanced by Electronic Cell Protection (ECP). This system prevents the battery cells from overload in case of high current draws, monitors battery temperature to avoid overheating, and ensures the battery is not deeply discharged, protecting it against irreparable damage.

Further cost savings are achieved with a flexible power system. Mr Lauer said, "The tool is 100 per cent compatible with all Bosch 10.8V Li-ion battery packs and charges."



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# Manufacturing

## Moulding a more competitive future

Having already filled a gap in the market for polyurethane (PU) products in screening applications, **Aury Africa** has acquired an injection moulding machine to keep up with demand while minimising costs through local production. The new machine is being imported from China, and is expected to be fully installed and commissioned at Aury Africa's facility in Johannesburg, South Africa, by end-2015.

PU panels for screening and vibrating equipment are popular across a variety of industries, particularly those that screen materials such as quartz, silica sand and gravel, in addition to those that require panels for dewatering purposes.

Aury Africa MD Mark Houchinsaid, "This is a highly-competitive and price-sensitive market. We are planning to take advantage of this price-sensitivity with the introduction of our PU injection mould machine, which will greatly reduce our overhead costs and, in time, is expected to grow our market share substantially."

The PU products currently imported by Aury Africa, which will be manufactured locally with the new injection moulding machine, include;

- Modular wedge wire panels.
- PU cross-tensioned screen cloths.



- PU long slots.
- Punch plate screen panels with PU borders in 305mm x 305mm and 305mm x 610mm.
- PU screens in 305mm x 305mm and 305mm x 610mm.
- Wedge wire screen panels with PU borders in 305mm x 305mm and 305mm x 610mm.
- PU panels in 305mm x 305mm and 305mm x 610mm, including pin and sleeve.

## Voith components for world-class mainline locomotives

A brand new fleet of 32 TG16M series double locomotives, currently being tested in Russia, are all fitted with advanced components manufactured and supplied by **Voith**. All locomotives are fitted with two Voith component sets, consisting of an L 530 breU2 turbo transmission, a cooling system, as well as highly-flexible couplings from the BR 152 and BR 199 range.

For this major order, Voith has equipped its newly developed cooling system with 'SilentVent' high-performance fans and weight and space-saving double block radiators. These parts allow maximum cooling output within the specified small installation space and ensure high power density.

The highly-flexible coupling in the driveline shifts the critical natural frequencies below the operating speed. This protects the system's components against critical vibrations and increases the service life and the availability of the driveline.

At the core of the driveline is the adaptable L 530 breU2 turbo transmission. In combination with the Voith Turbo drive control system and a CAN-Bus interface, it ensures high traction and optimal

efficiency across the entire output range of 1,000kW to 1,700kW.

With considerable investment being placed in railway infrastructure upgrades in South Africa, Voith is well-positioned to add substantial value to this market with its tried-and-trusted, and internationally-recognised product offering.

"Voith will actively contribute to the development of regional industry by localising its manufacturing and sourcing of components," said Themba Makoti, projects co-ordinator for the local rail division.



Themba Makoti, rail division projects co-ordinator, speaks of Voith's commitment to local transportation



# Demolition

## Bobcat loader demonstrates versatility and flexibility

The **Bobcat S550** skid-steer loader is used effectively around the world for demolition projects. One example is the recent rental by UK firm MTS Plant Hire & Sales Hughes & Salvidge Demolition, one of the UK's leading decommissioning companies, to demolish a British landmark, Castle Market in Sheffield.

The Bobcat S550 loader as supplied by MTS, has proved to be a vital piece of equipment. Due to its compact size, it has been able to work easily in the confined spaces inside the market, collecting debris and rubble with the Bobcat grapple attachment also supplied by MTS.

Demolition work began with careful asbestos removal, followed by a 'soft strip', with the superstructure now being demolished down to the concrete, with 98 per cent of the waste material being recycled. Some elements of the demolition have had to be carried out by hand with steel plates utilised to protect and preserve the ground under the structure.

With its ability to turn around in its own length and fast cycle times, the Bobcat S550 skid-steer loader provides the manoeuvrability and productivity needed to do more work in less time than other types of equipment. Together with controls that allow for precise movements



even in the tightest of spaces, Bobcat compact loaders such as the S550 model ensure safe, efficient operation at all times in areas inaccessible to traditional machines.

**Watermaster**  
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Restore shallow waterways  
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Remove invasive vegetation  
Maintain tailings ponds



# SimbaPay offers international access to M-Pesa PayBill

A mobile application transforming the international remittance space, **SimbaPay** now allows Kenyans living abroad to make M-Pesa PayBill payments. M-Pesa PayBill has previously only been available to **Safaricom** M-Pesa subscribers in Kenya and allows the subscribers to pay hundreds of vendors via M-Pesa. By SimbaPay granting PayBill access to its customers, Kenyans abroad can now also pay hundreds of vendors and utility companies in Kenya directly via M-Pesa PayBill.

Nyasinga Onyancha, CEO at SimbaPay, commented, "Our customers want to pay vendors in Kenya faster and without having to go through friends and family. This new product allows them to do just that, especially for time sensitive payments such as those to hospitals, stock brokers and the like."

SimbaPay customers will not require a Safaricom phone number or M-Pesa registration to pay vendors via PayBill as is currently the



case for M-Pesa subscribers living in Kenya. SimbaPay charges zero fees for its instant money transfers to M-Pesa PayBill numbers.

Kenyans living abroad with a bank account, debit card or credit card will be able to use the SimbaPay app to make M-Pesa PayBill payments from any mobile phone, tablet or computer. Transfers made using SimbaPay to M-Pesa PayBill numbers are credited instantly.

For ease of use, the majority of M-Pesa PayBill numbers and vendors have also been pre-loaded on to the SimbaPay platform which eliminates the need for customers having to remember a vendor's PayBill number. At the time of making an M-Pesa Paybill transfer using SimbaPay, customers will be required to select the

vendor to be paid and then enter their account number with the vendor. For example if paying a hospital bill, the patient number will be required.

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