www.africanreview.com

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

FINANCE
Increased investments in Zambia needed for SDGs by 2030 P18

POWER
Desalination plants and pump units powered by PV systems P24

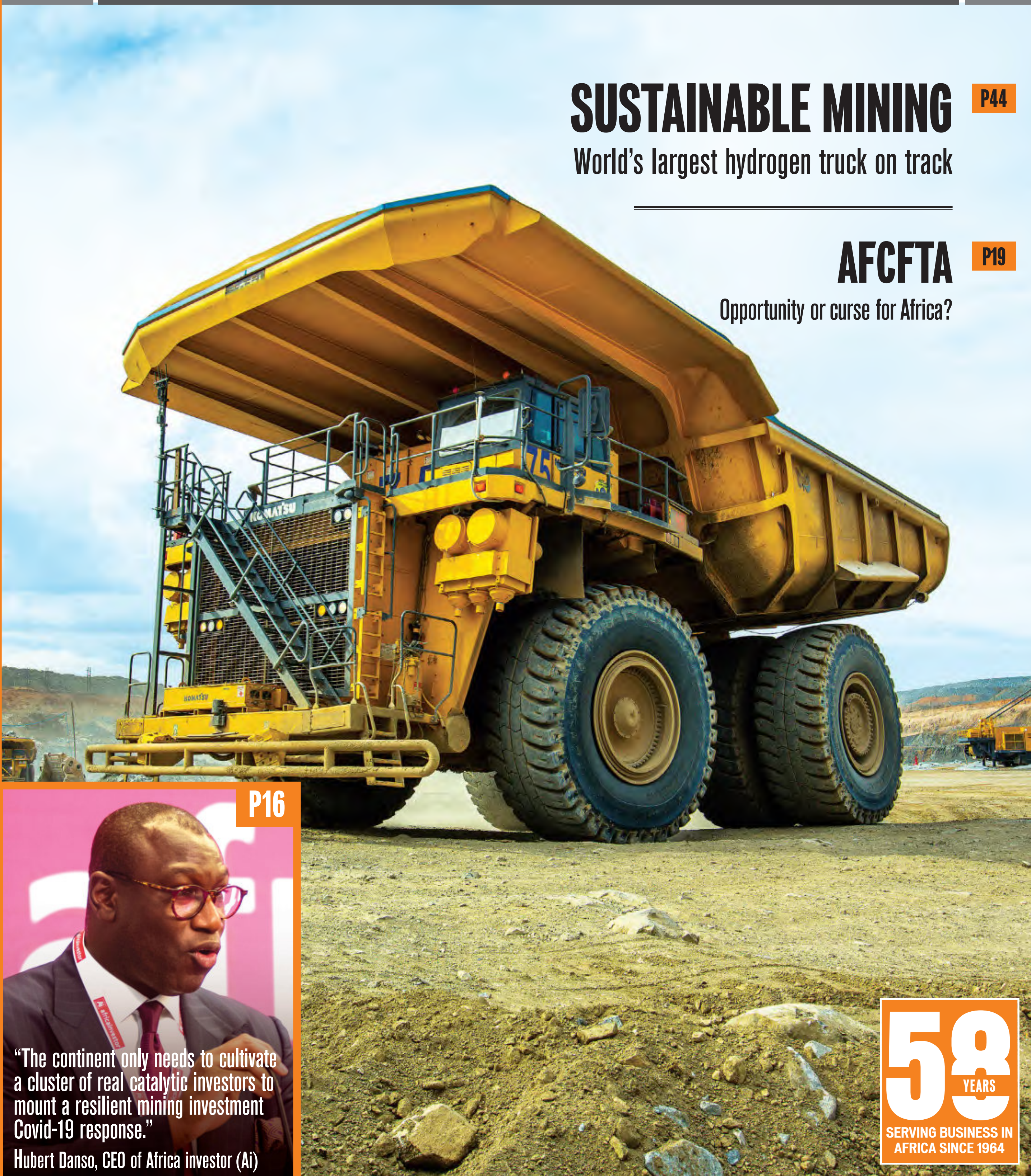
CONSTRUCTION
Roll-out of Volvo's 10-tonne asphalt compactors P30

MINING
Hybrid power solutions changing the industry P38

FEBRUARY 2021

African Review

of BUSINESS and TECHNOLOGY



SUSTAINABLE MINING

P44

World's largest hydrogen truck on track

AFCFTA

P19

Opportunity or curse for Africa?

P16

"The continent only needs to cultivate a cluster of real catalytic investors to mount a resilient mining investment Covid-19 response."
Hubert Danso, CEO of Africa investor (Ai)

58 YEARS
SERVING BUSINESS IN AFRICA SINCE 1964

Experience the Progress.

Cover picture: A Komatsu mine haul truck to be converted to using hydrogen at Mogalakwena platinum mine in South Africa. © Anglo American
Cover Inset: Hubert Danso, CEO of Africa investor (Ai) © Hubert Danso

Editor: Samantha Payne
Email: samantha.payne@alaincharles.com

Editorial and Design team: Mariam Ahmad, Prashanth AP, Fyna Ashwath Miriam Brtkova, Praveen CP, Manojkumar K, Nonalynka Nongrum Unique Pattnaik, Abhishek Paul, Rahul Puthenveedu, Deblina Roy Vinita Tiwari and Louise Waters

Contributing editor: Martin Clark

Publisher: Nick Fordham

Sales Manager: Richard Rozelaar
Email: richard.rozelaar@alaincharles.com

Magazine Manager: Jane Wellman
Tel: +44 207 834 7676 Fax: +44 207 973 0076
Email: jane.wellman@alaincharles.com

India	**TANMAY MISHRA** Tel: +91 98800 75908 Email: tanmay.mishra@alaincharles.com
Nigeria	**BOLA OLOWO** Tel: +234 80 34349299 Email: bola.olowo@alaincharles.com
UAE	**MURSHID MUSTAFA** Tel: +971 4 448 9260 Fax: +971 4 448 9261 Email: murshid.mustafa@alaincharles.com
UK	**RICHARD ROZELAAR** Tel: +44 20 7834 7676 Fax: +44 20 7973 0076 Email: richard.rozelaar@alaincharles.com
USA	**MICHAEL TOMASHEFSKY** Tel: +1 203 226 2882 Fax: +1 203 226 7447 Email: michael.tomashefsky@alaincharles.com

Head Office: Alain Charles Publishing Ltd, University House, 11-13 Lower Grosvenor Place, London SW1W 0EX, United Kingdom
Tel: +44 (0)20 7834 7676, Fax: +44 (0)20 7973 0076

Middle East Regional Office: Alain Charles Middle East FZ-LLC, Office L2-112, Loft Office 2, Entrance B, PO Box 502207, Dubai Media City, UAE,
Tel: +971 4 448 9260, Fax: +971 4 448 9261

Production: Srinidhi Chikkars, Swati Gupta and Nelly Mendes
E-mail: production@alaincharles.com

Chairman: Derek Fordham

Printed by: Buxton Press

Printed in: JANUARY 2021

ISSN: 0954 6782

SUBSCRIPTIONS:

Rates for one year (11 issues):
Europe €107, Kenya KSh3400, Nigeria N6600, South Africa R460, United Kingdom £77, US$140

To subscribe: visit **www.africanreview.com/subscribe**
For any other enquiry email circulation@alaincharles.com

Alain Charles Publishing
Serving the world of business

Editor's Note

Welcome to our February issue of African Review. In our cover story, we caught up with Anglo American and its plans on developing the world's largest hydrogen mining haul truck as part of efforts to reduce the company's carbon footprint, (page 44).

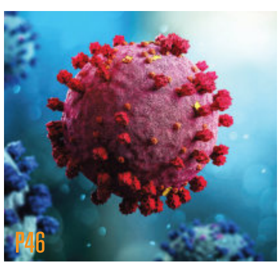
Our economist, Moin Siddiqi, provides a comprehensive overview of the African Continental Free Trade Area, (AfCFTA) agreement, which came into being last month, and its implications in transforming Africa's intra-regional trade capabilities. The World Bank now says intra-continental trade will increase to US$532bn in 2035, compared to US$294bn before the agreement was enforced, (page 19).

Other highlights to look out for in our power and construction sections, include how a Finnish tech company is helping to produce clean water for people in Kenya through solar-powered desalination units (page 24), and an in-depth study of the African construction sector, with emerging markets in Kenya and Ethiopia, looking bright for the future, (page 32).

Over in mining, battery metals could be the next 'gold' for West Africa, (page 42), and finally, we met the experts from the Water Institute of Southern Africa (WISA) conference, who explained why youth are paramount in providing the water solutions of the future, (page 46).

Samantha Payne, *Editor*

Contents



Arab Investment Bank drives digital strategy with Temenos Infinity and Payments

Temenos Infinity and Temenos Payments are digital banking systems, soon to be adopted by the Arab Investment Bank to improve performance, drive its digital growth strategy and boost financial inclusion across Egypt.
The software aims to broaden Arab Investment Bank's customer base and make digital payments easier than ever for consumers.

Of Egypt's adult population of 67 million, 90% of which have a mobile phone, only one in three has a bank account – of this, less than 6% made digital payments in the last year.

Image Credit: Adobe Stock

Less than 6% of Egyptian adults made digital payments in the last year.

With Temenos Infinity, the bank hopes to make its services faster and more accessible for its customers. The new system accelerates time-to-market for new digital banking products – allowing Arab Investment Bank to offer a seamless digital experience across its entire product range. The system's sophisticated analytics will also drive customer engagement and acquisition, helping them target the most relevant potential customer bases, boosting the bank's digital revenues five times over and cutting customer onboarding time by 75%.

Temenos Payments focuses on Arab Investment Bank's strategic growth area of boosting digital payments, supplying the bank with a comprehensive and universal platform for efficient payments, removing the need for different systems for different payment types. Streamlining the process of enabling and receiving all kinds of digital payments simplifies the operation for both the bank and its customers.

Jean-Paul Mergeai, managing director for Temenos' operations in the Middle East and Africa, explained, "Internet and mobile banking are key to unlocking economic development and financial inclusion and so Temenos is proud to support Arab Investment Bank in its bold mission to improve access to digital banking services in Egypt. The suite of Temenos products deployed by Arab Investment Bank provides an agile platform to move forward at speed with its digital ambitions. By making it easier to open a bank account, receive and make digital payments, our technology is helping Arab Investment Bank dramatically improve the lives of 44 million Egyptians, who currently do not have a bank account."

LEKELA INSTALLS FIRST TURBINE AT WEST BAKR

Lekela, the renewable power generation company that delivers utility-scale projects across Africa, has announced the successful installation of the first turbine at its 250MW West Bakr wind project in Egypt.

The installation marks an important step in the future of the project, which began construction in February last year. In total, 96 turbines will be installed by Siemens Gamesa, with the wind farm set to become fully operational later this year.

Located 30km north-west of Ras Ghareb, West Bakr Wind is part of the government's Build, Own, Operate (BOO) scheme.

The property will provide an additional 250MW of clean energy to the grid as the country strives to generate 20% of its electricity from renewable sources by 2022. The project will also prevent more than 550,000 tonnes of carbon dioxide emissions per year.

CEVA LOGISTICS ACQUIRES MOROCCO'S ASTI GROUP

Following a long-term partnership spanning over two decades between the two companies, CEVA Logistics has continued its goal to widen its presence across Africa by acquiring the Morocco-based ASTI Group.

In acquiring ASTI Group, CEVA Logistics hopes to expand its export capability, notably their reefer services, in co-operation with its parent company the CMA CGM group (a shipping and logistics specialist) and contractual logistics activities across Casablanca and the Tangier free zone, where ASTI Group operates.

The new operation will be focused on capitalising on the current strength of Morocco's automotive industry, a vertical in which CEVA Logistics has already established itself as a market leader.

ASTI Group currently consists of almost 100 full time members of staff across two locations. This will give CEVA Logistics extra capability in air, ocean, ground project logistics and customs clearance services. ASTI is fully certified with authorities and has a direct EDI interface with Moroccan Customs, which will help streamline CEVA Logistics' Moroccan exporting and importing operations.

CEVA Logistics' CEO, Mathieu Friedberg, explained, "The acquisition of ASTI further enhances our standing in the African market and shows our ambition for the continent as a whole. We believe there is enormous potential across a range of freight services and extending the CEVA brand in its own right in Morocco will set us on the road to further success."

Chief executive officer and founder of ASTI Group, Ahmed Belmrah, said, "The sale of ASTI to CEVA Logistics is the logical continuation of our historic partnership and constitutes an important step in the strategic development of CEVA Logistics in both Morocco and Africa."

BRIEFS

Image Credit: AfDB

AfDB has apppointed several new regional director generals and deputies.

AfDB's new deputy director general

Among Africa Development Bank's new regional director generals and deputies is the new deputy director general for North Africa – Malinne Blomberg. Blomberg has more than 15 years experience in development finance, joining AfDB in 2008, most notably leading the bank's operation in Egypt as country manager.
Blomberg commented, "I am very grateful for this mandate that allows me to deepen the bank's partnership with its clients across North Africa."

Image Credit: Marriott Africa

St Regis Cairo boasts 286 rooms.

Marriott International unveils St. Regis Cairo

On the banks of the Nile in the north end of Corniche, stands the new St. Regis Cairo – a 39-storey hotel with 286 rooms and suites, and 80 apartments. Satya Anand, Marriott International's president for Europe and MEA said, "Egypt has historically been one of our key markets... the St. Regis Cairo is an exciting addition to our fast-growing brand portfolio and is set to elevate Cairo's luxury hospitality landscape."

Throughout 2020, 47 crude oil and 15 natural gas reserves were found across Egyptian territory.

Image Credit: Adobe Stock

Egypt's oil and gas industry resilient as other sectors stutter

Exploration activities are paying dividends and are key to Egypt's oil and gas expansion, reports Robert Daniels.

After a challenging 2020, Egypt's non-oil sectors have deteriorated as the pandemic continues to wreak havoc on the economy. However, the oil and gas industry has seen a flurry of positive activity in the new year, following positive developments in 2020, which have served to spark hope for its future security and growth.

As Covid-19 cases in Egypt continued to rise at the end of 2020, non-oil businesses witnessed a decline in operating conditions, reflecting falls in both output and new orders as client demand was reduced, according to an IHS Markit report. The IHS Markit Egypt Purchasing Managers' Index, a composite gauge to provide a snapshot of operating conditions, registered 48.2 in December, below the 50.0 mark, indicating moderate deterioration of the non-oil sector. The report also noted that employment cuts accelerated at the fastest rate seen in four months.

While other sectors were struggling, the Egyptian oil and gas sector marked the turn of the year with a spate of positive announcements, encouraging expansion and development.

> "We look forward to the drilling of further wells as part of our 2021 campaign."
>
> **BRIAN LARKIN, CEO OF UNITED OIL AND GAS PLC**

Exploration in the Mediterranean and Red Sea

The Egyptian Ministry of Petroleum and Mineral Resources announced a minimum investment of US$1.4bn to search for petroleum and natural gas. International and Egyptian companies including Total, Shell, Tharwa, Chevron, Kuwait Foreign Petroleum Exploration Company (KUFPEC), and ExxonMobil Egypt have signed 12 agreements to drill in 23 separate locations across nine regions in the Mediterranean Sea, and three in the Red Sea.

One such area is the North Ras Kanayis Offshore block, located in the Herodotus Basin, which covers an area of 4,550sq km, extending 5-150km from the shore with water depths ranging from 50-3,200m. Total is leading a consortium to explore the block, which will consist of a 3D seismic campaign being carried out within three years.

Also, scheduled to be explored further is the Red Sea Block 4, which has an area estimate of 3084sq km. The block is located in an area adjacent to the prolific Gulf of Suez basin and is owned by the South Valley Egyptian Petroleum Holding Company. The Egyptian Ministry of Petroleum and Mineral Resources signed the concession agreement with Mubadala Petroleum for oil and gas exploration in the block, which is operated by Shell.

Eni discovery in the Western Desert

This fresh phase of exploration came soon after Eni announced the successful discovery of oil through the Arcadia 9 well in the Western Desert. Drilled on the Arcadia South structure, located 1.5 km south of the main Arcadia field already in production, the well encountered an 85 ft oil column in the Cretaceous sandstones of the Alam El Bueib 3G formation. Following this discovery, two further development wells, Arcadia 10 and Arcadia 11, have been drilled both of which also encountering respective oil columns. The new discovery will add 10,000 bpd to Eni's gross production in the Western Desert.

United Oil and Gas Plc spudding commences

Targeting the Alam El Bueib reservoirs at a depth of 3,600-3,950 m, the United Oil and Gas Plc has begun spudding the ASH-3 vertical well. This comes with high hopes after the ASH-2 production well, which came onstream in 2020, has produced more than 1mn bbl to date, with rates of 4,500bpd.

Brian Larkin, CEO of United Oil and Gas Plc, said, "It is equally pleasing to be back drilling in Egypt again, after the deferral of the majority of the 2020 drilling programme due to the low oil price environment, and we look forward to the drilling of further wells as part of our 2021 campaign."

The ability of the Egyptian oil and gas market to buck the trend of economic decline has been reflected in its success with oil exploration. The Egyptian Ministry of Petroleum and Mineral Resources reported in 2020, 47 crude oil and 15 natural gas reserves were found across Egyptian territory, which amounted to a 13% rise in the discovery of oil compared to the previous year.

While other sectors in Egypt are struggling with the effects of the pandemic, the oil and gas industry is seeking, instead, to expand production and bolster profits, with a corresponding positive impact on Egypt's economy and its ambitions to become a regional energy hub. ■

Germany supports Namibia for economic revival of SMEs

Image Credit: The Embassy of the Federal Republic of Germany - Windhoek

The relief programme is part of the German financial cooperation and builds on Covid-19 related support.

Development Bank of Namibia (DBN) and the Development Bank of Germany (KfW) have signed a loan agreement in which KfW will provide refinancing for DBN's non-agricultural small business loan scheme.

The loan scheme aims to form an integral part of Namibia's Ministry of Finance's "Economic Stimulus and Relief Package to Mitigate the Impact of Covid-19".

The interest-reduced loan amounts to approximately US$30.8mn. DBN will provide the actual loans to non-agricultural SMEs that have experienced significant losses of income as a result of the Covid-19 pandemic. The relief measure is aimed at supporting cash flows and continued economic productive activities. The loans can also be used for investing into new business areas that help strengthen the resilience of companies for future shocks. The government-backed guarantee loan underscores the resolve of the Government of the Republic of Namibia to promote access to affordable finance for SMEs, especially during these unprecedented times. "The extension of this loan facility comes as a good shot in the arm for the SME sector at this point in time. It is complementary to the suite of support packages, extended to the SME sector as the engine of economic recovery, growth, jobs and wealth creation," stated Ipumbu Shiimi, Minister of Finance.

The DBN forecasts that the funding offers urgent financial relief to around 200 SMEs. The DBN will customise the loans based on individual enterprise needs. Industries such as tourism, hospitality, and transport and logistics, having experienced the largest loss of revenue due to lockdown-related effects nationally, regionally and globally, will be prioritised.

"The highly valued support will contribute to preserving continuity of SME business activities and build a foundation for recovery," said CEO of DBN, Martin Inkumbi.

Although the bank will, through its SME lending window, give its attention to start-ups, the new relief programme is part of the German financial cooperation and builds on Covid-19-related support, provided via technical cooperation implemented by GIZ, in partnership with the Ministry of Industrialisation and Trade and Ministry of Finance, which targets start-up businesses as well as SMEs.

FAYMONVILLE DELIVERS LOW PA-X LOADER IN SA

Customer CTS East from Brakpan, Gauteng has received Faymonville's low pendle-axle PA-X loader in South Africa. The unbeatable stroke of 600mm makes the 5-axle semi-trailer extremely off-road-capable and the steering angle of 60° ensures high manoeuvrability when the route demands it.

The height of a special haulage convoy is decisive to clear power lines, bridges and other obstacles. With the low pendle-axle PA-X and its minimum loading height of only 790mm, Faymonville offers the solution to handle any challenging route sections easily.

The lifetime of the tyres is extended as a result and winding jobsite entrances can be mastered easily. Additionally, the yellow low loader with a basic width of 3,000mm has an hydraulic gooseneck, double ramps with anti-slip rubber cover and a loading platform that can be double extended from 11,500mm up to 27,400mm. The robust chassis design also enables the transport of compact loads such as transformers.

STANDARD BANK PARTNERS WITH SOUTH AFRICA'S MAJOR RETAILERS

Standard Bank Instant Money has partnered with some of South Africa's major retailers and selected spaza shops; growing its footprint to more than 15,000 cash out points nationwide.

"Innovation and access to financial services is crucial for Standard Bank and that is why we have expanded our retailer footprint to offer our customers more options for using Instant Money, which is designed to make transactions faster and more convenient," said Ethel Nyembe, head of card and payments at Standard Bank.

"The full range of Instant Money products ranging from our business Bulk Payments solution, the personal Instant Money Wallet, to Instant Money Transfer on Standard Bank channels and retailers offers a range of affordable, convenient and trusted solutions for those who need to send and receive money on the move," Nyembe explained. This sought-after service is particularly in demand at month-end, during long weekends, school breaks and holiday periods.

Instant Money receivers are now able to redeem their money at Pick n Pay, Shoprite, Usave, Checkers, House and Home, OK furniture as well as selected spaza shops nationwide. This is in addition to Standard Bank's established retail partner network comprising of Spar, Game, Builders Warehouse, Cambridge Food, Rhino Cash and Carry and Makro.

"We want to create a future where our customers can just go down the street and not be required to commute to send or receive their money," stated Nyembe.

Customers that do not bank with Standard Bank are able to send money to any South African cell phone number from places, such as Spar, Game and Builders Warehouse. Account holders can access Instant Money via online and mobile banking, and ATMs.

BRIEFS

Caledonia expects to produce more gold in Zimbabwe

Image Credit: Adobe Stock

The company is exploring the potential for more gold in Zimbabwe's mining sector.

Caledonia Mining Corporation has produced approximately 15,012 ounces of gold during the last quarter of 2020 from the Blanket Mine in Zimbabwe, the company stated in its report. The record total gold production during 2020 was 57,899 ounces, the top end of the company's revised increased guidance.

Caledonia Mining Corporation has further stated that the gold production for 2021 is expected to be between 61,000 - 67,000 ounces.

Acrow helps restore transportation lifelines in Mozambique

Image Credit: Adobe Stock

The modular steel structures range from 30m to 60m in length.

Acrow, an international bridge engineering and supply company, has provided 26 modular steel bridges to Administração Nacional de Estradas (ANE), the National Road Administration of Mozambique. The bridges will be installed in rural areas of Mozambique to restore vital transportation routes damaged by cyclones in 2019. The modular steel structures range from 30m to 60m in length, with each having a single 4.2m-wide traffic lane.

Liebherr R 9800 is the world's most efficient excavator in its class

The Liebherr R 9800 Excavator is built to outperform all competitors in the ultra class mining market. Weighing 800 tons, this 'beast' has been developed as the optimal loading tool for large scale mining operations to achieve the most demanding targets.

Kanu Equipment proudly distributes all Liebherr mining, construction and earthmoving machinery across Africa and offers tailored solutions from technical advice, spare parts and logistics to highly skilled and experienced maintenance support.

Now, in celebration of the successful delivery, assembly, service and support (not to mention demand) of this impressive machine into Africa, we have partnered with Liebherr to offer you a chance to win this fantastic Lego Technic prize, valued at US$500.

Kanu Equipment has decided to award these phenomenal Lego sets to six lucky entrants from within the African territories that they operate in. The competition closes on 2 May, 2021 and the winners will be announced on African Review's and Kanu Equipment Africa's LinkedIn pages on 3 June, 2021.

Simply visit www.kanuequipment.com/competition to be entered into the draw.

World-class:
The R 9800 Excavator.

Image Credit: Kanu Equipment

IFC and Kobo360 partner to pilot innovative cooling solutions in Nigeria

Image Credit: Kobo 360

Temperature-controlled logistics is essential for economic development, health and food security.

IFC, a member of the World Bank Group, in partnership with Kobo360, an African digital logistics platform, announced an open call for innovators from around the world to bring climate-smart, temperature-controlled logistics (TCL) cooling solutions to Nigeria to help the country address food waste challenges, support its health sector, and reduce energy consumption.

The TechEmerge Temperature-Controlled Logistics Nigeria programme provides market access and up to US$1mn in funding to top innovators matched with leading Nigerian companies to jointly pilot sustainable solutions that reduce losses in cold chains, strengthen access to TCL-dependent products and markets, and build commercial partnerships.

"We are excited to support cutting-edge entrepreneurs to pilot and scale their temperature-controlled logistics solutions in Nigeria, and Africa more broadly," said IFC's senior director of disruptive technologies and funds, William Sonneborn.

"Africa's cold chain capacity faces a lack of investment in equipment for maintaining a specific temperature range throughout the supply chain. We've seen a gap in the market for shipping solutions, specifically concerning moving deep-frozen, cold and ambient goods in a safe and temperature-controlled environment. Temperature-controlled shipping is constantly evolving and our partnership with the IFC is a key step towards discovering the best innovations that will enable the efficient transport of chilled goods," said Ike Abiakam, Kobo360's founding partner and head of KoboCare.

ANDRITZ TO SUPPLY EQUIPMENT FOR HYDROPOWER DAM IN SENEGAL

International technology group ANDRITZ has received an order as part of a consortium with VINCI Construction to supply electro-mechanical equipment for the new Sambangalou hydropower dam in the Senegalese region of Kédougou, bordering Guinea.

The contract for ANDRITZ is expected to be booked in the second half of 2021. The ANDRITZ scope of supply includes the complete 'from water-to-wire' solution, including three Francis turbines with a total output of 128MW, generators and all other equipment required.

Work will begin in the first half of 2021 and is scheduled to last 48 months. At the peak of activities, the overall site will employ up to 1,000 people recruited and trained locally. The Sambangalou hydropower plant will enable the production of renewable energy for the benefit of the surrounding rural localities, the development of irrigation systems for agricultural land as well as the supply of drinking water for the neighbouring districts.

This new contract is a further collaboration between ANDRITZ and VINCI, demonstrating ANDRITZ's strong market position in the supply of hydropower equipment for sustainable hydroelectric infrastructure projects.

FEDERATED COMMODITIES EXPLORES PARTNERSHIPS FOR AFRICA'S COCOA INDUSTRY

The CEO of Ghanaian firm, Federated Commodities, Hajia Maria Adamu-Zibo, is ready to form international partnerships to take the country's cocoa sector forward.

"As an affiliate company of Global Haulage, FedCo engages in the supply of traceable and certified cocoa beans to help promote sustainability in cocoa production through community development and capacity building of farmers.

Under this programme, farmers are trained on adult literacy and good agricultural, business and social practices, which empowers them economically," said Adamu-Zibo, in an interview with AfricaLive.net.

"We have diversified into the cashew market which gives us a great alternative during the lean period of the cocoa season. Part of our community engagement drive is getting into farm service agreements with individual farmers.

Adding value to our cocoa is also part of our national strategy. Value addition will help increase the value of our product, boost our standing in the global cocoa industry, and lead to job creation," added Adamu-Zibo.

"We are looking to seal important contacts in Europe and America as we seek sustainability partnerships that will be of mutual benefit. In Africa, we are looking at maybe getting partners in Ivory Coast as well as South Africa because these are two strong cocoa markets. We possess the knowledge as far as cocoa is concerned and an ideal partner would be someone who has the technical expertise to process on a large scale."

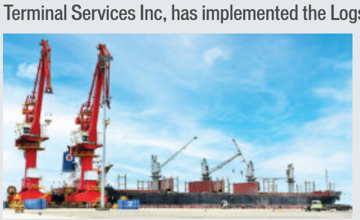
Adamu-Zibo believes that Ghana stands to gain greatly from the AfCFTA agreement, as long as the country improves its skill base and makes production funding more accessible.

BRIEFS

ICTSI upgrades Cameroon terminal

Kribi Multipurpose Terminal, the Cameroonian subsidiary of International Container Terminal Services Inc, has implemented the Logstar Terminal Operating System as part of the company's efforts to deliver a world-class service at the Port of Kribi. A major step in developing the port's infrastructure and superstructure, the TOS solution will facilitate efficiency. MT is a deep water general cargo facility catering to ro-ro projects and heavy lift cargo, oil and gas industry.

Image Credit: ICTSI



ICTSI's Kribi Multipurpose Terminal in Cameroon.

Starsight extends debt facility

Image Credit: Thinapob/Adobe Stock

Starsight has expanded to more than 500 sites since June 2019.

Starsight has announced Finnfund and Norfund have increased their senior debt facility from US$10mn to US$20mn, enabling it to continue to deliver hybrid solar solutions to commercial and industrial customers in Nigeria and Ghana. Clients benefit from end-to-end service, 99% uptime guarantee, and freed capex. Tony Carr, CEO of Starsight, said,"We're proud of our relationship with our partners at Finnfund and Norfund, and value their confidence in Starsight's team."

Sudan

Sudan is located in East Central Africa. It is bordered by Egypt to the north, the Red Sea to the northeast, Eritrea and Ethiopia to the east, South Sudan to the south, the Central African Republic to the southwest, Chad to the west, and Libya to the northest. Sudan is the third largest country in Africa, after Algeria and DR Congo. Sudan's total land area amounts to some 1,886,068km², with 18,630km² of irrigated land.

After agriculture, oil is Sudan's major natural resource. The country also has significant deposits of chromium ore, copper, iron ore, mica, silver, gold, tungsten, and zinc.

Mining Operations in Sudan

Operating and running a mining site with high efficiency is a very challenging job, especially in a country as vast as Sudan. Operators face many obstacles and difficulties, which may well hamper or even totally eliminate your efficacy and effectiveness.

Poor infrastructure is one of the key challenges facing the mining industry in Sudan. The state of the country's transport infrastructure creates an impediment which contributes to inefficient logistical operations by raising cost and creating delays. There are many other factors which also play a role in creating challenges in running an efficient mining site; such as ensuring uptime, providing spare parts for machines, providing fuel for your fleet, providing skilled operators, and managing these cost effectively.

We at DAL Mining ensure customized mining services solutions; from a specific scope of work to a complete turn-key mining operation. DAL Mining has the knowledge, experience, people, and equipment to build an all-needed mine-site infrastructure, as well as the ability to provide a full production mining service. These services enable mine owners to optimize their resources, control and lower their costs, and execute projects more efficiently.

Today, the DAL Mining expert team not only delivers sustainable cost savings for your business, but also provides a wide range of services to help achieve maximum cost efficiency.

Hani Girgis
Sales & Business Development Manager
DAL Mining

DAL GROUP
ENGINEERING DIVISION

Ethiopia and Kenya celebrate inauguration of key infrastructure projects

Image Credit: Adobe Stock

The infrastructure projects are expected to increase trade, tourism, and regional integration.

The Prime Minister of Ethiopia, Abiy Ahmed, and the President of Kenya, Uhuru Kenyatta, have inaugurated the Hawassa-Hagere Mariam-Moyale Road Project and the One-Stop Border Post (OSBP) in Marsabit County, according to reports by the Ethiopian News Agency.

The 500km Hawassa-Hagere Mariam-Moyale Road is a key segment of the Mombasa-Nairobi-Addis Adaba Road Corridor and the Trans-African Highway. Together with the OSBP, Ahmed claimed that the new infrastructure represented a key milestone between the two countries and will serve to increase trade, enhance tourism, and encourage interaction between people either side of the boarder to deepen socio-economic ties.

Ahmed commented, "Opportunities are now wide open for Kenyan companies to invest in energy and aviation in Ethiopia. Likewise great potential awaits Kenyan investors to explore our agro-processing, textile and garment manufacturing throughout the country."

Kenyatta noted that there remained substantial untapped trade and investment opportunities in both countries and urged the business community to capitalise on this new infrastructure. The president also commended the development partners, such as the African Development Bank (AfDB) and the UK government for their support with these projects.

In the last few years Ethiopia and Kenya have renewed their commitment to the LAPSSET Corridor Programme, which aims to develop regional integration and interconnectivity within the African Continent, through regional infrastructure, social and economic development. Both Kenyatta and Ahmed said that this regional infrastructure initiative was central to unlocking the economic potential of Kenya, Ethiopia, South Sudan and the entire East African region.

The two leaders concluded the ceremony by reiterating their plan to deepen trade and economic ties between Ethiopia and Kenya. Afterwards, they embarked on an inspection tour of the 23 Berth Lamu Port Project, another development that is part of the LAPSSET Corridor Programme.

ARC POWER TO INTRODUCE SOLAR BUSINESS PARKS ACROSS RWANDA

ARC Power has announced its latest initiative that will see new solar business parks, powered by clean energy generated from ARC's scalable solar mini-grid solutions, opened across every ARC site in Rwanda.

The first of the parks, located in Murama in the Bugesera District, has recently opened its doors for business. Originally sporting four units, soon to expand to seven, the site will provide a home for a locally owned bakery, tailors, milling station and a welding shop.

The parks will operate a 'plug-and-pay' business model which allows local entrepreneurs to pay for the power used, and the space they occupy at the park, at an agreed rate. ARC Power will provide any machinery required by the entrepreneurs on finance and charge businesses a small rental fee for each unit. By the end of 2021, ARC Power plans to have at least 20 solar business parks up and running to power the creation of more than a hundred new businesses across Rwanda.

AECF SETS UP PROGRAMME FOR GREEN COMPANIES

The Africa Enterprise Challenge Fund (AECF) launched a Results Based Financing (REACT RBF) programme to unlock new markets for clean energy companies in Kenya.

The US$4mn programme, funded by Swedish International Development Authority (Sida) will support commercially viable companies to establish new markets and accelerate access to clean energy for 87,000 unserved and underserved households.

Companies will be awarded funding of up to US$500,000 at contracting, with a flexible reallocation system to allow businesses that exceed their milestone targets to increase their funding cap to US$1mn. The RBF project is expected to be implemented over a two and a half year period running from July 2021 to December 2023.

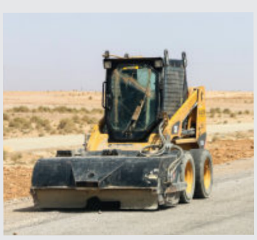
"The off-grid energy sector continues to require investment if we are to make notable progress in improving access to affordable and clean energy. We are excited to be launching the REACT RBF programme through which we seek to provide results-based incentives for companies that are increasing access for unserved and underserved communities. Energy access remains critical for a sustainable post Covid-19 recovery and we see REACT RBF helping companies to withstand the Covid-19 effects, recover, and come out stronger on the other side," said Victoria Sabula, CEO of AECF.

The REACT RBF programme will be rolled out in Kenya as the country has a relatively advanced clean energy market compared to other sub-Saharan countries. The AECF continues to be a leader in supporting the scaling up of clean energy companies in Africa, particularly in Kenya, to reach off-grid communities and substantially increase clean energy access for poor households. Access to reliable and affordable energy is critical for the reduction of poverty and enhancement of quality of life.

BRIEFS

Construction begins on key road network in Uganda

Image Credit: Adobe Stock



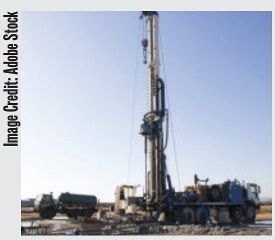
21km road network to be upgraded near Kampala.

At a ceremony in the Wakiso district, President Yoweri Museveni launched the revamp of 21 km of the Kiira-Kasangati-Matugga road network to the north of Kampala city.

According to the Uganda National Roads Authority (UNRA) the upgrades will help improve traffic flow within and around Kampala and Wakiso and ease connection to trunk roads. The road will also provide for bicycle lanes, pedestrian crossing, bus stops, tactile paving, and solar-powered lighting.

Helium One advances Rukwa Project

Image Credit: Adobe Stock



A compensation survey was also submitted with the assessment.

Helium One Global has submitted key environmental and social studies to help advance its aggressive exploration programme at the company's Rukwa Project in southern Tanzania, an area that holds one of the largest known primary helium resources in the world.

The study covers an area of 310sq km in three prospecting licenses and has been submitted to the National Environment Management Council of the Tanzanian Government.

Kabanga Nickel to develop nickel project in Tanzania

Kabanga Nickel and the government of Tanzania have signed a framework agreement to takeover and develop the Kabanga nickel project, in the Kagera region southwest of Lake Victoria.

The Tanzanian government and Kabanga Nickel will form a new joint venture – the Tembo Nickel Corporation – to take over the mine, which was formerly owned by Barrick Gold and Glencore up until 2018. As part of the acquisition, Kabanga Nickel confirmed an agreement with the previous owners to acquire all project data and information from them. The nickel deposit is one of the largest in the world and, while the majority of yields will be owned by Kabanga Nickel, by law the Tanzanian government will hold a 16% stake.


Image Credit: Adobe Stock

The project will be run by the Tembo Nickel Corporation.

As part of the agreement, Kabanga Nickel will be granted a refinery licence to process nickel concentrate and will commission a multimetal refinery facility, capable of smelting other metals, such as copper and gold. This will allow the company to process the concentrate in the country, eliminating the need to transport it to international refineries. Once set up, the project will produce class 1 nickel and cobalt products.

LAKE TURKANA WIND POWER SIGNS PARTNERSHIP WITH CLIR RENEWABLES

Clir Renewables has announced a partnership agreement with Lake Turkana Wind Power (LTWP) to enhance LTWP's 310MW wind farm performance tracking and support its Kenya-based team in realising potential opportunities for optimisation.

Clir will analyse data from each of Lake Turkana's 365 turbines in the context of available resource, geospatial features, and nearby turbines. Through its machine learning-driven analysis, Clir will be able to see through the 'noise' of resource fluctuation and identify any instances of underperformance and their causes, providing LTWP with the insights necessary to increase annual energy production, monitor asset health and manage technical financial risk. Clir's team will further use this analysis to compare individual asset performance with insights shared with all project stakeholders via Clir's reporting function.

David O'Hare, director for Clir Europe, said, "Lake Turkana is an unique project – it is the first of this scale in Africa and has been developed to take advantage of some of the best conditions for consistent energy production. We are keen to leverage our experience to assess Lake Turkana's performance and potential gains. We are delighted to provide access to our analytics and the team's global expertise in support of LTWP as it realises the potential of this project and the region's incredible resource, in terms of energy generation and resulting returns – a share of which we are delighted to see has been committed to the company's corporate social responsibility arm, the 'Winds of Change Foundation'."

Upcoming Events Calendar 2021

FEBRUARY

2-3

MINING INDABA VIRTUAL

www.miningindaba.com/Home

16

OFF-GRID SOLUTIONS - THEIR EXPANSION AND FINANCING

Virtual

www.africa-energy.com/events/grid-solutions-their-expansion-and-financing

23-25

SECURA NORTH AFRICA

Algiers, Algeria

www.securanorthafrica.com/en

25-26

6TH AFRICA MINI GRIDS SUMMIT 2021

Virtual

www.africaminigrids.com

MARCH

1-5

AFRICA ENERGY INDABA 2021

Virtual

www.africaenergyindaba.com

8-9

MOZAMBIQUE GAS & POWER

Maputo, Mozambique

www.africaoilandpower.com/event/mozambique-gas-power-2021

15-18

NAPEC

Algeria

www.africa-energy.com/events/north-africa-petroleum-exhibition-conference

17-18

6TH ARE ENERGY ACCESS INVESTMENT FORUM 2020

Lusaka, Zambia

https://eaif2020.b2match.io/

24-25

WEST AFRICA POWER SUMMIT 2021

Dakar, Senegal

www.wafpower.com

24-26

6TH SOLAR TANZANIA 2021

Dar-es-Salaam, Tanzania

www.expogr.com/tanzania/solarexpo/index.php

APRIL

14-15

INFRASTRUCTURE AFRICA

Virtual

www.infrastructure-africa.com

20-23

THE 3RD POWER WEEK AFRICA

Virtual

www.power-week.com/africa

21-22

MMEC 2021

Maputo, Mozambique

https://web.cvent.com/event/151688e7-2b1e-4147-bb86-170277022143/summary

President of Botswana confirmed for Mining Indaba Virtual

Investing in African Mining Indaba (Mining Indaba), part of Hyve Group Plc, has announced that His Excellency, Mokgweetsi Eric Keabetswe Masisi, President of Botswana, has confirmed to deliver his presidential keynote address at the upcoming Mining Indaba Virtual.

H.E. Mokgweetsi Masisi will be joining the already confirmed H.E. Cyril Ramaphosa, President of South Africa, H.E. Félix Tshisekedi, President of the Democratic Republic of Congo (DRC) and H.E. Julius Maada Bio, President of Sierra Leone, at Mining Indaba Virtual, which will be held from 2-3 February, 2021.

The mining sector continues to be seen as the backbone of Botswana's economy, and one of the largest contributors to gross domestic product, with minerals comprising almost 80% of export earnings. Over the years, Botswana has received widespread praise for the way in which it has converted mineral rents to fiscal revenues – combined with sound economic policies, these have helped build infrastructure and kept the economy stable.

Developing Botswana's coal

In 2018, Botswana was the world's second-largest diamond producer by value and volume, however, there are significant investment opportunities in expansion and development of the country's coal, coal bed methane, uranium, gold and silver as well.

Image Credit: World Economic Forum/Flickr

Mokgweetsi Eric Keabetswe Masisi, President of Botswana.

Building into the overall theme of Mining Indaba Virtual, geared towards building resilience and regrowth, helping to adopt a new mindset for the African mining sector, Masisi is expected to address Botswana's mining sector development, including progress on production and volumes in diamonds, gold, copper, coal and iron ore; new diamond and copper licensing opportunities for explorers and junior miners; developments of infrastructure in Botswana's Western corridor to stimulate international investment and safeguarding investors through transparency and sustainable fiscal regimes.

Botswana is looking to expand its renewable energy generation up to 15% by the end of this decade but given its coal reserves and the fact that it imports approximately 50% of energy from neighbouring countries it will remain focused on domestic fossil fuels development, with coal on track to contribute 300MW of new generation capacity and coalbed methane (CBM) providing 250MW.

Additionally, the Minerals Council South Africa has entered into a strategic partnership with Investing in African Mining Indaba for the Mining Indaba Virtual.

Tebello Chabana, senior executive of public affairs and transformation, said, "As the representative of most South African mining and exploration companies, the Minerals Council is ideally placed to help shape the agenda, and to further the purpose of Making Mining Matter."

For more information about the programme, visit https://miningindaba.com/Page/mining-indaba-virtual

Afreximbank sets up Africa's digital due diligence repository

African Export-Import Bank (Afreximbank) launched the operations of 'MANSA' in Cairo, a pan-African customer due diligence repository for financial institutions, corporate entities and SMEs.

MANSA is a single source of the primary data required for Customer Due Diligence (CDD) and Know Your Customer (KYC) checks on African entities, including financial institutions, corporates and SMEs, in accordance with best practices. The platform will also serve to address key trade-related challenges facing the continent, including the lack of market information, the high cost of doing business in Africa and discovering African counterparties.

The launch of MANSA operations was announced at a virtual event on 30 November, 2020, hosted by Afreximbank, that featured a panel discussion involving Prof. Benedict Oramah, president of Afreximbank; Ade Ayeyemi, group CEO of Ecobank; Stefan Nalletamby, director – Financial Sector Development Department at the African Development Bank; Dr. Naglaa Nozahie, governor's advisor, African Affairs, Central Bank of Egypt and Engr. Mansur Ahmed, president, Manufacturers Association of Nigeria.

> "MANSA offers an opportunity to begin bringing down the borders and support the goals of the AfCFTA."
>
> **PROF. BENEDICT ORAMAH, PRESIDENT OF AFREXIMBANK**

Solution to trade barriers

Speaking during the event, Prof. Benedict Oramah said, "Globally, regulators are toughening their stance as well as the severity of their sanctions for breaches of customer due diligence compliance regulations instituted to prevent various financial crimes and related activities. This has dramatically increased the cost and complexity of satisfying Customer Due Diligence and Know Your Customer requirements. We have created MANSA as the solution to the negative impact on Africa, such as de-risking, the withdrawal of correspondent banking relationships and cuts in trade finance and investment financial flows to Africa. In a fragmented continent of 55 countries that hardly traded among themselves since they became colonies, MANSA offers an opportunity to begin bringing down the borders and support the realisation of the goals of the African Continental Free Trade Agreement (AfCFTA)."

Emperor of the Malian Empire

The platform is named after Mansa Musa, the Emperor of the Malian Empire in the 1300s, who was responsible for opening up trade across Africa and believed to be the only person ever to control the flow of gold between Africa and the Mediterranean.

In this initial phase of implementation, MANSA is now open to African businesses to onboard their corporate profiles to the repository. Following an onboarding and validation process in keeping with the platform's compliance requirements, African entities will have their profiles listed and made available to users of the repository. ■

The MANSA platform will reduce the cost of doing business and facilitate trade between African countries.

Image Credit: Adobe Stock

"The government and energy companies have recognised the amazing opportunity that gas offers to change our economic ambitions. The issues around domestic gas and local concerns will be resolved with a market driven approach. This will pave the way for the use of affordable and abundant gas to launch industrial and agricultural-led growth, improve our trading abilities regionally, effectively increase the Mozambican spending power, and revitalise our economy in a post-Covid environment."

Image credit: African Energy Chamber

FLORIVAL MUCAVE

President of the Mozambique Oil & Gas Chamber

"This partnership will be catalytic in promoting off-season and higher-value agriculture across Togo. We are thrilled to be a contributing partner in Africa's largest public/private partnership utilising smart solar irrigation subsidies, and in doing so, ensuring that sustainable agriculture is both affordable and accessible to those who stand to gain the most."

SAMIR IBRAHIM

CEO & co-founder of SunCulture, on the partnership with Bboxx EDF Togo and the Government of Togo

"If we want peace and development in the Sahel region, we must invest in agriculture and in social capital. In particular, we must create jobs for youth. The failure of national economies to create conditions for decent incomes for rural young people poses a threat to political stability, nurtures extremism and promotes migration."

BENOÎT THIERRY

IFAD representative and country director for Senegal

"Vaccines are our best hope of ending this pandemic. While all the efforts being made for successful immunisation campaigns are critical, without community support they can easily flounder. The success of any immunisation campaign hinges on the community's trust and acceptance. It is vital that we equip them with the right information, allay any fears and address concerns."

Image credit: WHO/AFROP

MATSHIDISO MOETI

WHO Regional Director for Africa

"The pandemic has demonstrated that Africa's infrastructure needs to prepare for massive calamities and reverse the devastating impacts of future catastrophes, as this will not be the last one. We have both the instruments and the determination to make this happen. It is now high time to join hands to make the best out of our infrastructure development programmes."

Image credit: ITUI

H.E. AMANI ABOU-ZEID

Commissioner for Infrastructure and Energy at the African Union Commission

"Globalisation and digitalisation have broken down many barriers to better education, business opportunities and a higher quality of life for millions of people across sub-Saharan Africa. We look forward to the upcoming ratification of the African Continental Free Trade Agreement (AfCFTA), which has the potential to boost the region's global connectedness, facilitating the movement of people, investments and businesses across the region. There are still many opportunities for the region to improve its connectedness, and DHL will continue to invest in the region to connect people and improve lives."

HENNIE HEYMANS

CEO of DHL Express Sub-Saharan Africa

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

AFRICA'S CONSTRUCTION SECTOR TO GROW AT A CAGR OF 6.4% BY 2024

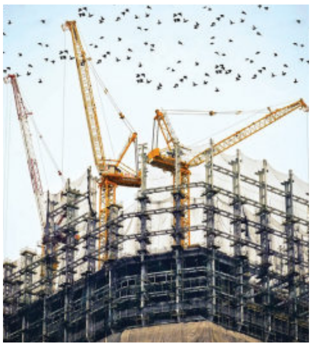


Image Credit: Free-Photos/Pixabay

East Africa has the largest number of recorded projects with 139 projects.

The Africa construction market is expected to register a CAGR of 6.4% from 2019-2024, according to Reportlinker's "Africa Construction Market - Growth, Trends, and Forecast (2020 - 2025)" report. This is because of accruing benefits and/or advantages such as availability of huge natural resources, huge investment opportunities in energy and infrastructure, cheap labour and a fast-growing consumer market. Also, there is a beneficial business environment that includes favourable economic development policies and rising commodity prices, in addition to continued progress in the fight against corruption and the adoption of democratic governments. As a region, East Africa has the largest number of recorded projects with 139 projects. North Africa accounts for the largest share of projects in terms of value at 31.5% (US$148.3bn). The projects included are spread over 43 of Africa's 54 countries. Egypt is the single country having the most projects with 46 projects (9.5% of projects on the continent) as well as the most projects by value at US$79.2bn (17% of the continent's value), edging out South Africa and Nigeria respectively. As a sector, the transport sector has 186 projects, 22.7% of total project value, followed by power and energy projects, with a share of 24.4% of the total project value. According to the report, South Africa's construction industry continues to face tough times amid lower investment in infrastructure by government, low business confidence and lower foreign direct investment.

TANESCO WILL PURCHASE GREEN ENERGY FROM SIX IPPS

Image credit: andreas160578/Pixabay

TANESCO is building other electricity projects in Tanzania to support the Tanzanian government's policy of achieving a 75% electrification rate by 2035.

Tanzania Electric Supply Company (TANESCO) has completed power purchase agreements with six independent power producers (IPPs) to develop renewable energy projects with a total capacity of 19.16MW. As reported in Afrik21, TANESCO will buy 19.16MW of electricity under the supervision of the Energy and Water Regulatory Authority (EWURA) of Tanzania. Nishati Lutheran Investment is developing a 36kW hydropower project at the Ijangala Falls in Makete. Madope Hydro is implementing the 1.7MW Madope Hydroelectric Project on the Madope River. Additionally, Luponde Hydro is signing a PPA with TANESCO for its Luponde hydroelectric project (nine kilowatts) on the Luhololo River in Njombe. Lung'ali Natural Resources is implementing the Maguta hydroelectric project (1.2MW) on the Lukosi River Falls in Kilolo. The six private companies will commence marketing their production within 18 months, the source further reported. Meanwhile, TANESCO is building other electricity projects in Tanzania, with an aim to support the Tanzanian government's policy of achieving a 75% electrification rate by 2035. One such project includes the construction of the Rumakali and Ruhudji hydroelectric power plants, which will have capacities of 222MW and 358MW respectively.

AFDB GRANTS US$11.26MN FOR WOMEN AND GIRLS' EDUCATION IN CHAD

Image Credit: Ian Ingalula/Pixabay

The Girls' Education and Women's Literacy Project is integrated into the government of Chad's Interim Education Plan.

The African Development Bank (AfDB) has approved a grant of US$11.26mn to the government of Chad to finance the Girls' Education and Women's Literacy Project – the country's first AfDB grant exclusively targeting women and girls. The project will be financed from the bank's Transition Support Facility and will be implemented over a five-year period by the Chadian Ministry of National Education and Civic Promotion, in coordination with partners involved in the education sector, civil society organisations, and youth organisations. The Chadian government will contribute a non-monetary contribution of US$713,000 towards the programme. "This enables the development of job skills and the improvement of women's productivity potential through literacy, job training and the development of income-generating activities," said Solomane Koné, AfDB's deputy director for Central Africa. The project aims to help improve access to quality secondary education in a safe and healthy school environment for 5,000 girls as well as train 2,200 teachers and administrative officials. It is also expected to provide literacy programmes to more than 7,500 women in Chad's Hadjer Lamis, Ouaddaï and N'Djaména regions. The bank-funded project has a component to raise awareness among target-area residents about reducing gender-based violence, as well as on the importance of girls' schooling to reduce early marriage and pregnancy.

AKSA POWER GENERATION GROWS RAPIDLY IN KENYA AND SUDAN

Image source: AKSA Power Generation

The company focuses on being one of the top-three genset manufacturers in the world by 2025.

Aksa Power Generation, a part of Kazancı Holding, has opened new offices in Kenya and Sudan, a move that is in line with the company's ambitious plan to grow rapidly in Africa. With eight offices in Africa, from North (Algeria office) to South (South Africa office), the company will open a Senegal office soon. Aksa's R&D facilities are located in Istanbul-Turkey and Changzhou-China by employing the highest calibre engineers and developing hardware and software solutions to provide world-class high-quality products. Being an expert in synchronised projects, Aksa's R&D team is the first in Turkey to develop proprietary product designs and Aksa is one of the first natural gas generator manufacturers in the world. Aksa meets the power requirements periodically and continuously, meanwhile providing its clients with a remote monitoring system, which provides technical control and monitoring of the generators from anywhere in the world. In addition to the standard product range; Aksa also manufactures tailor-made products which can ensure the specific requirements of customers. The company aims to be one of the top-three genset manufacturers in the world by 2025.

Public and private partnerships are key to unlocking capital for successful mining projects.

Image Credit: Adobe Stock

How to stimulate post-Covid investment in mining exploration in Africa

Hubert Danso, CEO of Africa investor (Ai), an institutional investment platform, and chairman of AU's Continental Business Network, talked to delegates at the Africa Mining Forum on how to attract investment in mining in Africa.

"The continent's potential to be a global mining investment haven cannot be disputed, when Africa is home to 90% of the world's platinum supply, 90% of the world's cobalt supply, 50% of the world's gold supply, 35% of the world's uranium, 9.6% of the global oil output, two thirds of the world's manganese, and 75% of the world's coltan supply," said Hubert Danso, CEO of Africa investor (Ai) while addressing delegates at the Africa Mining Forum on 16 November on the topic "The Next Smart Move: Covid-19 Recovery Plan to Stimulate Investment into Mining Exploration in Africa".

Despite the continent's huge resources, Danso stressed less than 50% of the continent has been geologically surveyed, and estimates that at least the same amount of resources have yet to be explored today.

But Africa only received less than one third of the US$3bn global exploration investment last year.

"We believe Covid-19 offers a unique opportunity to apply different approaches; public and private partnership models especially can better attract global and domestic shareholders, as well as innovate and assist the continent's mining sector, support Africa's integration and competitiveness in the global Fourth Industrial Revolution," Danso stated.

"First and foremost, we need to appreciate that the cheapest form of stimulus is confidence, and the ability to provide confidence and clear signals to the investment community is paramount and is really very important. We believe that there is a great opportunity to reset the public-private mining leaders relationship through private sector and presidential mining investment partnerships and collaboration, and we have seen it work effectively throughout the African Union through the Presidential Infrastructure Champions Initiative currently chaired by President Cyril Ramaphosa.

"We think we can have something like that level of leadership focus on the mining sector. The African Union has a programme with institutional investors called the 5% Agenda, which is a commitment between African heads of state in governments and African pension and sovereign wealth funds to increase their allocations in the region of 5% of all assets under management to infrastructure and long-term assets. We believe the mining sector is ripe for participation in that portfolio opportunity, and we've already seen a very good example from

> "We feel that the continent only needs to cultivate a cluster of real catalytic investors to mount a strong, resilient mining investment Covid-19 response."
>
> **HUBERT DANSO, CEO OF AFRICA INVESTOR**

Image Credit: HUbert Danso

Hubert Danso, CEO of Africa Investor.

Ghana, under the leadership of Nana Akufo-Addo, President of Ghana, who is working closely with the Ghananian Infrastructure Investment Fund, which has now started to invest in the gold mining sector in the country. That has really sent a very positive signal to institutional investors. We can already begin to see this model taking form in other countries on the continent.

"As a consequence the president has gained a great deal of confidence and support as a champion of the mining sector in Ghana and across the continent. But let's remember fundamentally capital markets and private equity investments are capital raising venues and instruments whose investments are made through companies and determined on their ability to build up a shareholder base and share premiums in terms of equity. Investment in the sector is very complex, competitive, and it is forensically compared to global peers, not just African opportunities."

He also stressed that investors are harder to find than actual good projects, which likewise are difficult to discover.

"We feel that the continent only needs to cultivate a cluster of real catalytic investors to mount a strong build back better, resilient mining investment Covid-19 response. The reality is it is easier to secure current investors and local producers to increase and expand their investment rather than secure new investors. However, it is easier to get new investors with the support of current investors and local producers. We, therefore, feel that a compelling Covid-19 mining sector response to attract investment into the mining sector should be in the form of a government partnership with local producers, premised on a four-point plan to optimally increase investment."

This plan involves:

- working with government and local producers to expand existing mines
- assisting local producers to purchase new mines
- bringing in new joint venture partners to invest in that growth
- intentionally targeting and attracting a larger percentage of the global exploration spend.

He continued, "There is a strong and unique opportunity now for governments to work with local producers and the investment community in partnership. We, in the private sector, wherever we are going to invest, in whichever sector, the first conversation is with the local producers and local private sector to ask how they are being treated, what the opportunities are for growth, and what the nature and the depth of the relationship is with governments. HE Francis Gatare, CEO at Rwanda Mines, Petroleum & Gas Board (RMB), has already seen fruit because of the leadership delivered through his own ministry, and his president being a very dynamic leader, who understands the private sector. I really believe that partnership is something that should not be underestimated, it should be a forward looking partnership. There is a big world out there but I think with that partnership, and taking into account our blessed endowment, naturally we are well ahead of most competitors around the world. We just need to facilitate that partnership which will unlock unprecedented levels of capital, if it is properly cemented." ■

By Samantha Payne

Image Credit: International Labour Organization /Flickr

Nana Akufo-Addo, President of Ghana has been praised as a champion of the mining sector in Ghana.

Image Credit: Adobe Stock

Zambia: Southern Africa's emerging impact investment market

Zambia is gaining visibility and attracting increased investor interest as an emerging impact investment location in Southern Africa with continuing efforts to strengthen the country's impact investing ecosystem underway.

The newly formed National Advisory Board (NAB) on Impact Investing for Zambia – recognised by the Global Steering Group (GSG) at its annual summit in 2019 – is spearheading efforts to bring more investable opportunities to the table, raise investor awareness of Zambia, build local intermediation capacity and advocate for better impact investment regulation.

In partnership with the NAB, the UKAid-funded organisation, Prospero Zambia, is working to provide the financial and technical support required to bring the impact investment revolution to Zambia.

NABs have become the go-to resource for promoting impact investment. By bringing together governments, investors, asset managers, intermediaries, NGOs, and market builders such as professional firms, NABs are powerful change agents for developing impact economies that benefit people and planet. They have demonstrated their potential to unlock new sources of impact capital and develop national impact infrastructure and policies.

The launch of the NAB in Zambia comes at critical time when the country needs more impact capital to achieve the 2030 SDGs and finance its Seventh National Development Plan (7NDP). The Africa 2030 plan for reaching the SDG requires a minimum financing of US$500bn annually (SDGC Africa, 2019).

Its purpose is to lead efforts to bring more investable opportunities in Zambia, raise impact investing awareness, build local intermediation capacity and advocate for better impact investment regulation. NAB aims to become an influential cross-sector coalition aimed at driving capital to improve lives and the environment.

"Zambia needs to increase the level of investments in its impact sectors five-fold to US$5bn per year in order to achieve the SDGs by 2030. This corresponds to 1,000 new investments per year when applying the average historical deal size. This illustrates the interventions required within the Zambian impact investment ecosystem," said NAB.

The country is well-known for its copper-based raw-material exporting economy; but economic diversification and increasing investment in value addition are accelerating as businesses serve a growing and urbanising population.

SMEs specialising in activities such as food processing, solar energy and other renewables, and conservation tourism are major players in a new generation of Zambian businesses that have successfully raised impact finance to support business growth.

Over the last two years, Prospero Zambia has been working with such businesses to make them investment ready – guiding them through the process of preparing for due diligence, meeting potential investors and negotiating deals.

"The vision for Zambia is that it will emerge as a regional hub for impact investment in the region – surrounded as it is by other early stage but highly potential markets, such as Botswana or DRC. There is a long way to go, but the ambition is clear, and investors more familiar with Nairobi or Cape Town are starting to pay attention," said NAB.

The NAB is working with private sector and government stakeholders to promote lasting change in the impact investment ecosystem to allow more deals to be done – vital for growth of the country.

The Zambian impact investment market is expected to increase at a Capital Annual Gross Rate (CAGR) of 13% towards 2023.

> "Zambia needs to increase the level of investments in its impact sectors five-fold to US$5bn per year."
>
> **NATIONAL ADVISORY BOARD**

Macro-economic challenges

Although the outlook for investment is positive and there are so many opportunities, the macro-economic situation is in a quagmire. Emerging markets are not popular with investors in a period of declining global growth. In Zambia, the interest rates are rising with the increased indebtedness of the country. The reduced foreign currency reserves led to a liquidity crunch, which has had a knock-on effect in the finance sector and beyond. Inflation is rising and the Zambian Kwacha is under constant devaluation pressure.

Furthermore, power is out for half the day, reducing many productive hours of SMEs and the service industry while the price of fuel is expensive. The Zambian economy is small with 17 million people sharing a GDP of US$5bn. The mining sector accounts for more than 12% of that GDP, according to the World Bank. There is also an uneven Gini coefficient (representing the wealth inequality within a nation), which is very high and points to a small base of spenders in the country. Not surprising that Zambia slipped in the global competitive index to 120 out of 141 countries.

On top of all that, is the ongoing impact of Covid-19 on investment. In GSG's new policy paper, it identifies three core phases: emergency, recovery and renewal.

"If our objective is to stop the pandemic, we need entrepreneurial innovation to deliver vast quantities of effective tests as soon as humanly possible," said GSG chair, Sir Ronald Cohen. ■

By Nawa Mutumweno

From 2021, AfCFTA milestone will impact Africa for years down the road

The African Continental Free Trade Area (AfCFTA) agreement was launched on 1 January, 2021. Economist Moin Siddiqi analyses what measures need to be adopted to make the accord a success for African countries.

The AfCFTA agreement came into effect on 1 January, 2021.

Image Credit: Adobe Stock

The 'pan-African' free-trade zone was launched on 1 January 2021, covering a marketplace of 1.3bn people (60% of whom are age 25 years or younger) and a gross domestic product (GDP) of US$3.4tn. Once completed, the African Continental Free Trade Area (AfCFTA) will be the world's largest economic bloc in terms of membership (55 countries). African integration is an opportunity for all countries. It could transform the continent on the European Union (EU) model of closer political, security and economic integration.

The main goals of AfCFTA are deepening economic ties in accordance with African Union (AU) Agenda 2063; creating a continental customs union; liberalising intra-African trade in goods and services; resolving challenges of multiple/overlapping memberships in regional economic communities (RECs); enhancing competitiveness; promoting free mobility of capital and labour and facilitating investment; achieving sustainable/inclusive development and structural transformation; and promoting industrialisation – whereby AU states not only trade in commodities but also in more 'value-added' goods.

> "Over the medium-term, greater integration across sectors means a bigger market for businesses, financial institutions and exporters to build new client relationships across borders."
>
> UNITED NATIONS ECONOMIC COMMISSION FOR AFRICA

Thus far, the treaty contains a legal framework for trade in goods and services, the institutional set-up, and state-to-state dispute settlement provisions. The specific terms of trade liberalisation in goods/services are still being negotiated. Additional protocols on investment, competition policy, and intellectual property rights protection will be negotiated in phase two of the agreement.

Specific details

The AfCFTA aims to lower intra-regional tariffs and cover policy areas such as trade facilitation (1) and services, as well as regulatory measures, e.g. sanitary standards and technical barriers to trade. The milestone accord is large in scope. It will complement existing sub-Regional Economic Community agreements in Africa by creating a continent-wide regulatory framework. AfCFTA seeks to unify eight regional blocs into a single marketplace, based on similar structures to the Brussels-based EU Commission's institutions.

Under AfCFTA, tariffs on 90% of tariff-lines will be eliminated over a five-year period (10 years for the least developed countries, or LDCs). Starting in 2025, tariffs on an additional 7% tariff-lines will be abolished over a five-year period (eight years for LDCs). Up to 3% of tariff-lines comprising 10% of intra-African imports can be exempted from liberalisation until end-2030 (2033 for LDCs). Non-tariff barriers (2) on goods and services are reduced on a Most Favoured Nation status (3). Also, AfCFTA will be accompanied by trade facilitation measures, complying with the Trade Facilitation Agreement (4). The treaty aims to boost intra-African trade by 60% by 2034.

> "The potential of AfCFTA becoming a catalyst for regional development depends on real commitments to abolishing trade barriers."
>
> **MOIN SIDDIQI**

Anticipated benefits

The World Bank calculated longer-term economic/distributional effects of AfCFTA – assuming all aspects of the treaty are fully implemented (which includes changes in tariffs, non-trade barriers (NTBs), and trade facilitation). Under this scenario, real income in Africa would grow by 7% or US$445bn and trade is predicted to surge – with export volumes up 29% by 2035. The bank envisages intra-continental trade, in monetary terms, reaching US$532bn in 2035 after the agreement is fully implemented, compared to US$294bn under the non-AfCFTA scenario.

The treaty has the potential to boost regional output and productivity thanks to large resource reallocation across sectors and countries. The agreement could increase Africa's GDP by US$211bn – with the largest gains in the service sector (US$147bn), manufacturing (US$56bn), and natural resources (US$17bn). Consequently, the labour market would, too, benefit as the share of workers in labour-intensive manufacturing, trade services, and public and recreational services should increase in the post-liberalisation era.

There are tangible gains from intra-regional trade associated with exploiting economies of scale in larger markets, attracting more foreign direct investment (FDI) inflows, increased competition, transfer of technology and managerial know-how, plus economic diversification. The United Nations Economic Commission for Africa noted, "Sub-Saharan Africa is still a continent of enormous potential. Over the medium-term, greater integration across these various sectors means a bigger market for businesses, financial institutions and exporters to build new client relationships across borders."

Stipulated obligations

The potential of AfCFTA becoming a catalyst for regional development depends on real commitments to abolishing trade barriers; embracing full market liberalisation; effective treaty execution on the ground by tackling constraints such as NTBs and border management procedures that hinder daily operations of producers and traders; prudent economic/business-friendly policies to induce greater investment in non-traditional sectors; specific complementary measures to ensure a smooth transition to free trade via improved connectivity within countries; a level playing field and intra-regional trade remedies, such as safeguards, antidumping, and countervailing duties.

A set of comprehensive regulatory reforms and capacity building among the institutions – at both supranational and national levels – are vital to enforce new regulations. The ministries of trade and customs agencies require training to effectively implement/administer the treaty's obligations and problem solving. Some AU states will be tasked with implementing an agreement for which they may have little experience. The AfCFTA also requires a 'multi-currency' clearing centre to facilitate cross-border transactions and to mitigate risks from trading in several different regional currencies.

Infrastructure for connectivity

A 'borderless' Africa can become an enormous market, but getting there poses practical challenges, thus taking considerable time to reap the maximum benefits of AfCFTA. It requires significant policy reforms at sub-regional levels and solid logistics/infrastructures across the continent, which according to the African Development Bank faces a 'funding gap' of between US$130bn and US$170bn a year. The African countries also need to forge closer collaboration with the private sector – the only viable source of capital – mostly in the form of public-private partnerships (PPPs) and inward FDI.

Infrastructure connectivity offers the greatest scope to enhance regional integration. The AfCFTA in coming decades will create investment opportunities in transportation, energy, and

Trade routes in Africa were designed for external trade rather than facilitating intra-African trade.

Image Credit: Adobe Stock

Image Credit: Adobe Stock

The World Bank believes intra-African trade will reach US$532bn in 2035 after the pan-African agreement is implemented.

infrastructure deficits and high trade-related transaction costs have over the decades hindered regional trade.

Trade routes in Africa were designed for external trade rather than facilitating intra-African trade. Economic centres in 15 landlocked countries are located far from the closest seaport. "Policy makers in all member countries, especially in transit countries, share a critical responsibility to help overcome geographical constraints or the lack of economies of scale due to small transportation volumes.

information and communication technologies, among other sectors. Infrastructure upgrades lie at the heart of Africa's development and growth agendas. New road and rail links will help increase trade flows within the continent. Large

> "A renewed focus on the efficiency of transport and logistics services is long overdue."
>
> WORLD BANK

A renewed focus on the efficiency of transport and logistics services is long overdue," argued the World Bank.

In sum, presently, intra-African trade at 16% falls well below Asia where it's almost 60% and Europe (70%). Thus, huge work lies ahead in removing many obstacles such as higher tariffs, technical barriers to trade and improving coordination of economic policies among AU member states. 'Pan-African' cooperation is key to the ultimate success of the AfCFTA. Secretary-General AfCFTA, Wamkele Mene commented, "The only [post-Covid-19] economic recovery tool that we have collectively as Africans, is implementation of this agreement, so that trade becomes the driver of Africa's recovery." ■

TRADE TERMS EXPLAINED

Trade facilitation refers to the use of risk management and other customs and border management best practices, rights of appeal, and having information made available, among others.

Non-trade barriers can be classified in three broad categories: (i) non-tariff trade measures, such as technical and sanitary/phytosanitary barriers; (ii) poor trade facilitation services, including logistics/ transformation infrastructure, border processes and customs practices; and (iii) other trade-related transaction costs, such as quotas, licenses, complex rules of origins and low credit to create or expand businesses.

Most-favoured-nation status is an economic position in which a country enjoys the best trade terms given by its trading partner. That means it receives the lowest tariffs, the fewest trade barriers, and minimum import quotas (or none at all). In other words, all MFN trade partners must be treated equally.

The **Trade Facilitation Agreement (TFA)** entered into force on February 2017 following its ratification by two-thirds of the World Trade Organisation (WTO) membership. TFA covers provisions for expediting the movement, release and clearance of goods, including goods in transit – hence making 'cross-border' trade easier, faster and cheaper.

Siemens Gamesa launches its first wind farm project in Ethiopia

Siemens Gamesa has signed its first wind power project in Ethiopia with state-owned electricity company Ethiopian Electric Power (EEP), strengthening its leadership in Africa as the country begins to expand its green energy capacity to meet ambitious renewable targets.

The 100MW Assela wind farm will be located between the towns of Adama and Assela, approximately 150km south of the capital, Addis Ababa, and will contribute to clean and affordable power for the country's electricity grid.

Image Credit: Siemens Gamesa

The wind farm will be located around 150km south of Addis Ababa.

The country has set an ambitious target to supply 100% of its domestic energy demand through renewable energy by 2030. According to the African Development Bank, Ethiopia has abundant resources, particularly wind, with a potential 10GW of installation capacity and having installed 324MW at present. According to a Wood Mackenzie forecast, around 2GW of wind power would be installed in Ethiopia by 2029.

"Siemens Gamesa is intent on expanding its leadership across Africa, and in turn help a growing transition to green energy across the continent. So, we are extremely pleased to begin work in Ethiopia and look forward to collaborating with both EEP and the country to continue to promote their drive to install more renewables and meet transformational energy targets," said Roberto Sabalza, CEO for Onshore Southern Europe and Africa at Siemens Gamesa.

The wind farm will be made up of 29 SG 3.4-132 wind turbines and is expected to be commissioned by the start of 2023. The project will generate around 300,000MWh per year. Siemens Gamesa will provide full engineering, procurement, and turnkey construction.

The Assela wind project will be financed by the Danish Ministry of Foreign Affairs via Danida Business Finance (DBF) adding to a loan agreement signed between the Ethiopian Ministry of Finance and Economic Cooperation (MoFEC) and Danske Bank A/S.

Ethiopia has many renewable resources covering wind, solar, geothermal, and biomass, and the country aspires to be a power hub for the Horn of Africa. The country's National Electrification Programme, launched in 2017, outlines a plan to reach universal access by 2025 with the help of off-grid solutions for 35% of the population.

AFDB APPROVES LOAN FOR HYDROPOWER PLANT

The African Development Bank has approved a US$120mn loan to fund the construction of a 50MW hydropower plant in western Tanzania that will provide reliable renewable energy to households, schools, clinics and small and medium-sized enterprises in the Kigoma Region. The Government of Tanzania will provide the remaining US$4.14mn.

The project has several components: a run-of-the-river hydropower plant facility; a 54km, 132kV transmission line that will connect to Tanzania's national grid; a distribution network expansion operation that includes rural electrification and last-mile connections; project management and contract administration support; and compensation and resettlement of affected persons.

The project aligns with Tanzania's national Development Vision 2025 and its Second Five-Year Development Plan (2016/17 - 2020/21) and complements other regional initiatives.

PARTNERSHIP FOR SUB-SAHARAN AFRICA RENEWABLES

Enel Green Power S.p.A. (EGP), has signed an agreement with a subsidiary of Qatar Investment Authority (QIA) for a joint venture partnership aimed at financing, building and operating renewable projects in sub-Saharan Africa. The parties also signed an agreement whereby QIA will acquire 50% of EGP's stake in projects in operation and under construction in South Africa and Zambia with approximately 800MW capacity.

Francesco Starace, Enel CEO and General Manager, said, "Through this new partnership, we will combine our group's sustainable strategy, enhanced by our industrial expertise in business development, engineering and construction, as well as operation and maintenance of renewable plants, with QIA's long-term investment strategy, in line with the two companies' sustainability and decarbonisation targets. We will work together to accelerate the creation of an extensive green energy footprint in sub-Saharan Africa, contributing to the continued pursuit of its ambitious goals in this sector by further harnessing the region's immense renewable potential and contributing to a more sustainable economic development model in this part of the world."

Under the agreement, EGP will be responsible for the development of each project and the joint venture has the right to invest in the projects following the successful completion of the development phase and receipt of any required regulatory approvals. At that point, the joint venture will be in charge of financing and building the new renewable projects.

The initial portfolio consists of the 34MW Ngonye PV plant in Zambia, already in operation, the recently-connected 148MW Nxuba wind farm in South Africa, and four projects under construction in South Africa, expected to start operating during 2021.

BRIEFS

Low-carbon energy collaboration

Image Credit: IRENA

The signing of the agreement between IRENA and AfDB.

The International Renewable Energy Agency (IRENA), and the African Development Bank (AfDB), have agreed to collaborate on joint initiatives supporting investments in low-carbon energy projects. The agreement focuses on enhancing the role of renewable energy and provides for collaboration on the AfDB's Desert to Power Initiative, which aims to mobilise public and private funding to install 10GW of solar power by 2025 in 11 countries in the Sahel region.

Finance for African renewable energy projects

Image Credit: Berkley Energy

Achwa 2 hydropower project, 41MW, Uganda, developed and constructed by Berkeley Energy, with funding support from SEFA.

The African Development Bank (AfDB) has approved US$15mn in equity and grants from the Sustainable Energy Fund for Africa (SEFA) and US$10mn from the Clean Technology Fund (CTF) for African Renewable Energy Fund (AREF) II's projects to boost low-carbon energy generation in sub-Saharan Africa. This will help small and medium-sized producers to add more than 800MW of hydropower, solar and wind power and battery storage across sub-Saharan Africa.

Off-grid power projects could modernise South Africa's energy sector

Stephen Barnes, head of Power and Infrastructure, and Rentia van Tonder, head of Power at Standard Bank Group talk on the importance of decentralised projects in supporting South Africa's power supply.

Decentralised power projects, or those that are not tied to the national grid, could play a major role in closing South Africa's electricity supply gap and modernising its energy sector.

The country's electricity crisis – as reflected by ongoing instances of load-shedding, or planned power cuts – continues to weigh on the economy. The Council for Scientific and Industrial Research (CSIR) estimates that the supply gap is currently between 5GW and 8GW.

Further, businesses are contending with sharp and unpredictable increases in their energy costs, and this is impacting business confidence.

But thanks in part to rapid declines in the cost of renewable energy, and advancements in battery storage technologies, decentralised energy solutions are now a viable alternative, and they could go a long way towards alleviating South Africa's electricity challenges.

The shift in this direction has already started, although it could accelerate dramatically if various enablers can be provided to stimulate the sector. Regulatory issues, environmental permitting, and grid-tie arrangements that allow independent units to feed surplus energy into the grid, remain complex issues that need to be addressed to truly unleash the potential of decentralised energy.

The sector's growth has also been restricted by funding challenges, and misalignment between developers,

Rentia van Tonder.

Stephen Barnes

clients and funders. Despite these and other challenges, as much as 1.1GW of small-scale solar power has been installed by commercial and industrial firms to date, according to the South African Photovoltaic Industry Association's estimates.

When combined with battery storage technologies, these solutions ensure certainty of supply, and equally as important, they ensure certainty of cost. They also help to take the pressure off the national grid.

Hydro, wind and solar are currently the most attractive technologies in Africa, which has an abundance of these natural resources. And while renewable energy units have historically only been able to provide an intermittent supply of electricity, they will become increasingly reliable thanks to rapid advancements in storage technologies, which are becoming more affordable. Combined with the costs associated with electricity distribution, this strengthens the case for a shift towards decentralised energy across Africa.

In addition, funding arrangements are now being structured more appropriately. Standard Bank is increasingly partnering with developers and other key stakeholders to approach funding and project design differently so as to enable the roll-out of these projects.

It has become clear that early alignment between the developer, the client and the funding partner gives rise to better technical solutions and funding models. As a result, early phase alignment is obtained, and innovation enabled. Given South Africa's massive electricity supply gap, there is an opportunity for thousands of small-scale renewable energy installations in the months and years ahead.

Poised for a continent-wide shift to decentralised power

We believe that decentralised green-energy solutions, which promote innovation as they are purpose-built, will continue to gain momentum as municipalities, mining houses and industrial firms seek to ensure cost certainty and reliability of supply. Alongside hydro, wing and solar, some mining groups in Africa are even turning to hydrogen power to diversify their electricity mixes – an indication that the fledgling hydrogen economy is garnering more interest.

In countries such as Nigeria – where the electricity self-generation market is 55% larger than the main grid – we expect the country will start to seriously consider pivoting towards decentralised renewable solutions as oil subsidies near an end, so as to decrease the supply shortfall and better service the large and geographically fragmented population.

The shift to decentralised power – and renewables specifically – will also be boosted by the increased investor awareness of environmental, social and corporate governance (ESG) issues.

We believe that the addition of more modular, decentralised energy solutions could remove a major drag on the economy and help Africa to reach its potential. ■

Africa is only home to around 1% of the PV capacity installed worldwide.

Image Credit: Adobe Stock

Africa's massive potential for solar PVs

Africa has immense potential for photovoltaics which has barely been utilised up until now. Wallace Mawire reports.

A pioneering spirit is spreading across the continent, with many countries paving the way for ambitious photovoltaic projects. This was the conclusion of the Intersolar Solarize Africa Market Report 2020, prepared by the Becquerel Institute and the German Solar Association (BSW-Solar) with support from Intersolar Europe, the world's leading exhibition for the solar industry.

The report analyses the market conditions in 16 African countries and presents multiple potential scenarios for the future. It was first introduced to the public at the Global Solar Council Virtual Forum, which took place on October 27 and 28, 2020.

It is reported that electrification and renewable energies are at the top of the political agenda in many African countries. And yet, the actual rates of installation in the past year remained low. With around 6.6GW, the continent is only home to around 1% of the PV capacity installed worldwide as of the end of 2019. While the use of photovoltaic technology continues to rise globally, almost no new solar systems are being set up in the sunniest regions of the earth.

The Intersolar Solarize Africa Market Report 2020 takes a closer look and presents an analysis of the market in select African countries, for the first time including Senegal, Mali, Uganda, Madagascar, Kenya and Tunisia. The report investigates the various phases of the photovoltaics markets for 16 African countries as well as their individual regulatory conditions and potential for photovoltaic installations. It also issues a clear call to utilise the potential that already exists.

It is added that closer observation shows that there is plenty happening on the continent. Many countries have projects in the pipeline, some on a significant scale, and the underlying political conditions are improving all the time.

For instance, Algeria is planning to install photovoltaic systems with a combined capacity of 4GW by 2024, while the end of 2019 marked the completion of Egypt's Benban Solar Park. With a total installed capacity of 1.5GW and six million photovoltaic panels, Benban is the largest solar park in Africa and among the biggest in the world. And Egypt is planning to install another 3.5GW of solar energy capacity by 2027. Kenya has plans to set up commercial PV installations with a total capacity of 500MW as of 2019 and contracts were recently finalised to build a solar park of the same size in Mali.

> "Africa is on the threshold of a major transformation, which can be best described as a wave that keeps swelling."
>
> DAVID WEDEPOHL, CEO OF THE GERMAN SOLAR ASSOCIATION

"Africa is on the threshold of a major transformation, which can best be described as a kind of wave that just keeps swelling. We are excited to see what will come next," says David Wedepohl, CEO of the German Solar Association (BSW-Solar).

Future solar outlook

The report presents four potential scenarios for the future of photovoltaics in Africa. The "policy-driven" and "business as usual" scenarios are based on the various countries' current expansion goals and assume cumulative photovoltaic capacity of approximately 70GW by 2030. More probable is the "solarise Africa accelerated" scenario, which presumes that photovoltaics in Africa will develop broadly in the same way as in other parts of the world, giving 170GW of installed capacity by 2030.

The central assumption of the

fourth scenario – the "solarize Africa paradigm shift," which builds on the current atmosphere on the continent – is that the African markets are in some respects skipping over the fossil fuel age altogether. It combines the installed PV capacity with the targets laid out in the Paris Agreement. With a cumulative capacity of 600GW by 2030, this scenario envisions Africa as a very important region in the future global PV market.

It is added that since half a billion people in sub-Saharan Africa live without access to electricity, this year's report analyses the competitiveness of standalone local power grids, or microgrids, for the first time. It is estimated that Africa makes up about half of the world market for these grids. Clean and reliable electricity is key to improving economic and societal conditions in African countries.

Solar and water

This year's report also considers the potential offered by combining solar energy and water for the first time. A billion people in Africa do not have access to clean drinking water. Water desalination and purification plants as well as pump units powered by photovoltaic systems are needed as one of the building blocks of a safe and environmentally friendly water supply.

The lack of clean water is thus also a driving factor for photovoltaics deployment worldwide – while photovoltaics forms part of the solution to the many challenges present in this area. One example of the rise in innovative solutions for water and photovoltaics in Africa can be seen in Kenya.

A solar-powered microgrid desalination plant on the coast supplies 25,000 people with fresh water every day. Floating photovoltaic installations are also already in use in parts of Africa. ■

TOP SOLAR PV PROJECTS IN AFRICA

1) **The Noor Solar Complex** is a 500MW solar park located in the municipality of Ouarzazate in the Agadir district of Morocco. It is the biggest concentrated solar power plant project in the world.

2) **De Aar Solar Power Plant** is South Africa's biggest project, located in a town name "De Aar", in Northern Cape Province.

3) **Benban Solar Park** is Egypt's largest PV project Benban solar complex.

4) **GivePower** built its first solar water farm in a small village called Kiunga in Kenya.

5) The 8.5 MW power plant in Rwanda – a joint bid by **Gigawatt Global, Norfund and Scatec Solar**

Providing clean water through solar-powered desalination units in Kenya

Climate Fund Managers (CFM), a Dutch based blended finance manager, has agreed to co-finance and co-develop the installation of up to 200 desalination units in Kitui County.

The systems are based on innovation by Solar Water Solutions, a Finnish water technology company that has developed a method to make clean water with solar power, with the lowest energy consumption on the market.

The parties are now starting to pilot a project that will eventually aim to provide clean water from brackish ground water to 400,000 Kenyans by 2023. The total funding opportunity is estimated to be up to US$15mn.

"We are very pleased with the initiative that will bring very clean drinking water to the rural population in Kitui County that needs it most. It is the most exciting project I have been part of in all my career," said Emmanuel Kisangau, minister of Water in Kitui County.

The units consist of a container that houses the technology, solar panels, and a 'water ATM' which allows people to buy high-quality water with mobile payments. The new technology enables the desalination system to operate without connecting to the grid or using a set of expensive battery bank to store energy. Also, running costs are close to zero thanks to solar power.

Tarun Brahma, head of investments at CFM, said, "This initiative covers a major component of CI2's investment mandate: supplying safe drinking water with renewable energy to people that currently do not have access. We are excited to partner with Solar Water Solutions and the Kitui Government to develop this opportunity and combine safe drinking water with a 100% renewable energy solution."

Solar water ATM, which allows people to buy high-quality water with mobile payments.

Antti Pohjola, CEO of Solar Water Solutions, added, "Through this partnership with CFM and locally with Kitui County and Epicenter Africa, we can together revolutionise access to safe affordable water in rural Kenya. This project marks a breakthrough in solar-powered water infrastructure."

Eskom's initiatives & the African energy transition

African Utility Week and POWERGEN Africa Agenda 2020 was launched on the 24 November with a keynote interview featuring Andre de Ruyter, group chief executive at Eskom South Africa. Robert Daniels reports.

During African Utility Week, Andre de Ruyter, group chief executive at Eskom South Africa was questioned about how Eskom was going to deal with the energy transition after several troubled years for the company.

Ruyter acknowledged the organisation's issues with corruption, mismanagement and electricity theft and outlined five short term key focus areas that the company was pursuing.

These were returning to operation stability by catching up on maintenance, with aims to substantially reduce the risk of load shedding by September 2021; addressing the income statement; harmonising the balance sheet; restructuring the company into three separate legal divisions of generation, transmission and distribution by December 2021; and combating legacy capture and corruption in the hopes of turning around the low morale of his employees.

The chief executive also highlighted his belief that Eskom needed to embrace the energy transition and proposed that his plans for future projects were concentrated on adapting current infrastructure into new cleaner facilities. He noted that a benchmark study in the USA repurposed a coal fired power station into natural gas and estimated that there was a cost saving of 30-35% as opposed to constructing a new greenfield gas fired power station.

A panel featuring Lisa Pinsley, director of energy at Actis, Simon Hodson, CEO of Gridworks Partners, and Clinton Carter-Brown, energy centre manager at the Council for Scientific and Industrial Research, welcomed Ruyter's comments and said Eskom's new initiatives were incredibly promising and would pave the way for more partnership opportunities.

Image Credit: Clarion Events

Andre de Ruyter speaking at African Utility Week and POWERGEN Africa.

Actis has invested around US$2bn in 12 South African projects producing more than 1GW in wind and solar power.

Hodson praised Ruyter's emphasis on reflective tariffs which he believed were the key to achieving investment and sustainability. He said, "While they have segmented the business, it's the fact they are heading towards reasonable cost-effective tariffs which will make it investable."

Both Pinsley and Hodson were impressed with ESKOM's new just energy transition (JET) office, the first of its kind in South Africa, to address the legitimate concerns of workers and investors embedded in the coal industry.

The transition to renewable energy is only growing momentum and the coal industry will be increasingly left behind with 10.5GW to be decommissioned by 2030 in South Africa alone. Understandably jobs in this sector will be lost, 2,000 employees have been let go by Eskom recently, but the JET office had been established to ensure these concerns were recognised and properly addressed. Additionally, Carter-Brown said at least 35,000 new jobs would be created in emerging industries like gas, wind and PV.

The panel stressed that despite Covid-19, Africa was still heading in the right direction but needs continued determination and greater clarity within the sector to drive the energy transition, as Eskom has started to do. Continued public and private emphasis on this development will lead to sustainable energy which will hopefully tackle the 680 million people currently suffering from electrical poverty across the continent. ■

> "It's the fact Eskom are heading towards reasonable cost-effective tariffs which will make it investable."
>
> **SIMON HODSON, CEO OF GRIDWORKS**

ROLLS-ROYCE UNVEILS MTU GAS ENGINE SERIES 500 FOR POWER GENERATION

Rolls-Royce has launched the new MTU Series 500 gas gensets for the industrial and utility sector, in addition to other applications. With a power range of 250 to 550kW and peak efficiencies of up to 42.6%, the gas gensets offer a climate-friendly and economical solution.

Gas gensets and cogeneration plants can be ordered on the basis of six-cylinder in-line engines as well as eight and 12-cylinder V-engines for the 50 Hz market. In cogeneration, when electricity and heat are generated, efficiencies of around 90% can be achieved. In the 60 Hz market, the units will be introduced from mid-2021.

"With the 500 series, we are offering our customers state-of-the-art products with which they are equipped for the future in terms of efficiency and environmental friendliness," explains Andreas Görtz, vice president power generation, at Rolls-Royce Power Systems.

Image Credit: Rolls-Royce

A wide range of variants: 6R, 8V, 12V versions deliver outputs from 250 to 550kW.

The products will initially be offered for operation with natural gas, and from mid 2021 also for biogas. The 500 series is H2-ready, meaning that the engines can be converted to hydrogen operation at a later date.

All gensets are equipped as standard with the flexible MTU module control system (MMC), a control system that can be customised to perform all important functions required for continuous monitoring and control of a complete customer solution.

Rolls-Royce offers a portfolio of energy systems that contribute to decarbonisation from simple storage solutions to complex microgrids that intelligently combine battery storage with renewable energies and diesel or gas gensets. A microgrid solution that combines heat and power from a gas genset, such as the MTU Series 500 with photovoltaics and a battery storage system can cut energy costs by over 40% compared to a conventional system.

KOHLER-SDMO's new diesel-powered gensets

KOHLER-SDMO has expanded the top end of the KD Series with the rollout of new models 4000kVA and 4500kVA (50Hz) / 3500kW and 4000kW (60Hz), based on a strong worldwide market response.

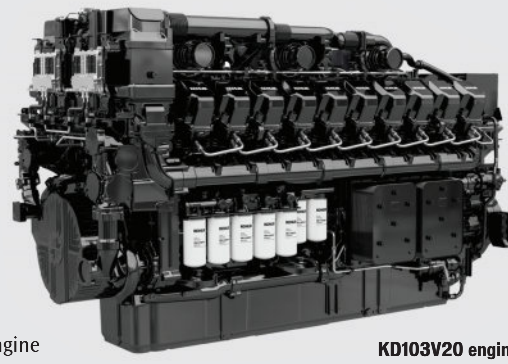


Image Credit: KOHLER-SDMO

KD103V20 engine.

In late 2016, KOHLER-SDMO unveiled an entirely new range of large diesel industrial generators up to 2800kVA (50Hz) / 2500kW (60Hz), powered by a newly designed platform of KOHLER diesel engines, represented by the K135 and K175 engine families. The range was subsequently extended to 3500kVA (50Hz) / 3250kW (60Hz) in 2018. The new generators are designed to deliver extreme durability and ultimate reliability in a variety of emergency and prime applications.

Brad Meissner and Cédric Briand, product managers at KOHLER , said, "With a 4500KVA / 4000kW generator, KOHLER can now offer customers the largest and most power-dense standby generator in the marketplace."

Developed by the company's global team of engineers, the new KD Series up to 4500kVA and 4000kW gensets incorporate a powerful and sophisticated K175 diesel engine – the KD 103 litre, 20-cylinder model. From a design perspective, KOHLER kept many of the engine components the same as the KD Series predecessors including the control system, fuel system, and cooling system.

The modular design of the KD103V20-powered generator sets is a bit larger than its V16 and V12 counterparts and delivers unprecedented power density and unrivaled performance. The generators are equipped with the APM802 controller that ties the entire system together for a seamless customer experience.

The APM802 control unit provides enhanced performance and monitoring features, such as (+/-.25%) voltage regulation, expanded inputs and outputs, a 12 inch colour touchscreen, and the ability to parallel as many as 32 generator sets.

...dit: KOHLER-SDMO

KD4500 genset.

FPT INDUSTRIAL POWERS "SUSTAINABLE TRUCK OF THE YEAR 2021"

FPT Industrial powers the "Sustainable Truck of the Year 2021" in the tractor category, the IVECO S-WAY NP 460 in LNG version. The winning truck is equipped with the latest generation of FPT Industrial's Cursor 13 Natural Gas engine for commercial vehicles on the market.

This six-cylinder engine ensures the IVECO S-WAY NP 460 a maximum power of 338 kW/460 Hp at 1,900 rpm and torque of 2,000 Nm at 1,100 rpm and diesel-like performance.

The engine design not only provides reliability and a longer product lifecycle, but it is also the only natural gas engine with 1,600km autonomy and the new reference in consumption with 4.12 km per kg of gas. Natural Gas (NG) is currently the most viable and low-cost sustainable solution, with FPT Industrial leading this segment with more than 55,000 engines sold worldwide. They can run on biomethane, bringing emissions down to almost zero.

Cursor 13 NG uses stoichiometric combustion and multipoint sequential injection, ensuring better fuel consumption and lower noise than diesel. It can run on 100% CNG, LNG or biomethane and delivers fuel cost savings versus diesel of up to 30-35%. To comply with emissions standards Euro VI Step D, this model relies on a simple three-way catalyst, without exhaust gas recirculation (EGR). The Cursor 13 NG is an alternative with low climate impact for long haul operations since it has been developed to meet high demands on performance and low operating costs.

The Sustainable Truck of the Year award was created by specialised Italian magazine Vado e Torno.

HYVA NORTH WEST AFRICA PROVIDES 12 TITAN HOOKLOADERS TO WASTE SOLUTIONS PROVIDER

Hyva North West Africa has completed a sale of 12 Titan hookloaders to a global waste solutions provider serving businesses and municipalities with waste and environmental management solutions in several cities in Morocco.

Hyva's 26t hookloader's favourable dead weight and its high lifting capacity is ideal for picking up the loaded compactor unit for discharging the garbage by hydraulic tipping. The operator needed an efficient and reliable container handling solution for transportation to the transfer station or waste disposal site.

The hookloaders were equipped with a fully automated sequence control lift system which helps to save time and can increase productivity and safety, benefiting the customer's fleet operation. The fleet is fully supported by Hyva's local and regional customer service team in Casablanca, which is also home to dedicated regional installation repair and technical application engineering teams. The local office is able to respond quickly to aftermarket needs and stocked spares to assist its customers and end-user.

Youssef Hachama from Hyva Maroc, commented, "This is a sizeable order from a global company for an important waste handling project in Morocco. The number of engineers on the road and our application support team make a big difference to us; we are more reliable and able to provide a better-quality service to our customers. In addition to the supply of hookloaders, it has allowed us to remind the market of Hyva's capability to supply other related equipment – cranes, skiploaders, mobile compactors and transfer station equipment – to waste handling projects. This is a great success story for Hyva North West Africa."

The Titan hookloaders.

Image Credit: Hyva

Hyva, a leading global provider of innovative and efficient transportation solutions for the commercial vehicle and environment services industries, has been serving and supporting customers in all parts of the world for more than 40 years. It offers full one-stop solutions for customers' transport lifting and container handling equipment needs, that are designed for their durability, efficiency, and reliability.

Titan hookloaders, known for their efficiency and reliability, are just one of a range of Hyva solutions – container handling, waste management, cranes and tipping solutions – available to customers in North West Africa.

FAYMONVILLE MODULES USED TO TRANSPORT ENGINES FROM GHANA PORTS TO NIGER

Ghanaian heavy haulage specialist MONPE Heavy Haulage has transported six power engines from Ghana ports to Niger, over a total distance of around 1,285km, on trailers from Faymonville.

Two 10-axle combinations type twin tyre ModulMAX with gooseneck were chosen to transport two engines at a time. As there were six of them in total, the complete job was handled successfully three times.

Peter Everett, owner of MONPE Heavy Haulage, trusted in Faymonville support and knowledge for these jobs.

He said, "Their load simulation software allows to determine the best positioning of the cargo for ideal load distribution. And the technical set-up of the twin tyre modular axle lines is made for this kind of task." The complete turnkey organisation of the project was handled by major logistics player DB Schenker, who charged MONPE with the on-road transport from the port to the job site.

The journey started at the major Ghanaian seaports Tema and Takoradi, where the engines, each weighing 219 tons, arrived by ship from CAT Germany, for onward transportation to their final destination at a power plant station near Niger's capital city of Niamey. Border crossings, bridge structures and small village roads needed to be analysed and properly prepared for and countless electric lines and other obstacles needed to be moved in order to guarantee a safe passage of the heavy-haul convoys, which passed through four different countries, from Ghana through Togo and Benin, and finally to Niger. Besides overcoming the generally rough road and climate conditions on this trip, the MONPE team also managed to meet the numerous Covid-19 requirements in the respective areas.

Despite all these challenges, the team managed to complete each journey in an astonishing average of only 23 days.

The convoy on the road in Ghana.

Image Credit: Faymonville

Everett commented, "We appreciate the premium product quality. Our twin tyre ModulMAX modular fleet was able to handle even the most difficult route sections. The 650mm stroke of the pendle-axles managed to cross very rough road segments with huge potholes and even some flooded areas, while still ensuring the stability of the convoy and cargo at all times. The necessary transport safety was guaranteed thanks to permanent optimal ground contact.

"My staff appreciates the gentle vehicle handling. The modular vehicle solutions by Faymonville are absolutely made for the most challenging conditions. We experienced the perfect example of that."

Faymonville's footprint and market penetration on the continent have grown consistently over the years, making it an important pillar in their worldwide network. Besides modular trailers, semi-trailers, extendable flatdecks, dollies and further specialised solutions from Faymonville help to move machinery and project cargo safely and successfully in Africa.

ADF approves loan for Uganda road projects

Image Credit: Adobe Stock

The Uganda project is expected to boost livelihoods, school attendance and rural connectivity.

The African Development Fund (ADF), the concessional lending arm of the African Development Bank group, has approved a loan of US$71.5mn to pave sections of two roads in south western Uganda, a project expected to boost livelihoods, school attendance and rural connectivity.

The loan represents roughly 86% of the project's total costs, with the government of Uganda funding the remaining US$11.9mn.

The central element of the project is to upgrade and pave 34km of the Kabale-Lake Bunyonyi-Kabeho circuit and the Kisoro-Mgahinga Park Gates road, as well as build two roadside markets, farm produce holding facilities and four ferry landing sites on Lake Bunyonyi.

The funds will also underwrite the provision of two ferries with navigational aids and the provision of technical assistance to the government to strengthen road safety regulations and support implementation of inland water transport aspects of the project. The project also makes provision for relocation and compensation of those affected.

The intervention's complementary approach – blending investment in road renewal with investment in farming and other infrastructure – aims to increase market access for farm produce, increase productivity in a rural part of the country, and strengthen social welfare.

Expected outcomes include improved tourism earnings, higher farm gate prices for commodities, increased school enrolment, and stronger hospital attendance in the project area.

"This innovative and integrated infrastructure development project is poised to increase market development, widen business opportunities and scale up food productivity, enhancing income levels in south western Uganda," said Amadou Oumarou, the bank's director of Infrastructure and Urban Development.

CHINA APPROVES LOAN FOR NIGERIA GAS PIPELINE

Nigeria's Federal Government has announced that China has approved a US$2.6bn loan from the Bank of China and Sinosure, a Chinese export credit organisation, for the Ajaokuta-Kaduna-Kano (AKK) Gas Pipeline project. This will fund 85% of the project cost, with the remaining 15% to be provided through equity from the Federal Government.

The pipeline, which is reported to be 15% complete, will transport natural gas from Ajaokuta, in Kogi State to Kano State, as part of the Trans Nigeria Gas Pipeline. When completed, the project will enable the injection of 2.2 billion standard cubic feet of gas per day (scf/d) of gas into the domestic market and facilitate an additional power generation capacity of 3,600MW. Construction commenced in July 2020.

Mele Kyari, group managing director at Nigerian National Petroleum Corporation (NNPC) announced that the project is set to be delivered on schedule to the agreed budget.

DP WORLD TO DEVELOP NEW PORT IN SENEGAL

Dubai port operator DP World and the Government of Senegal have signed agreements for the development of a 600ha deep water port at Ndayane, to include a 300ha container terminal, approximately 50km from the existing port and near the international airport. The new port, representing DP World's biggest port investment in Africa to date, will reinforce Dakar's role as a major logistics hub and gateway to West and North West Africa.

The first phase of the project will see an investment by DP World Dakar of US$837mn, which will make it the single largest private sector investment in the history of Senegal, and is expected to be followed by a second phase of investment of US$290mn.

Phase one will include a new container terminal with 840m of quay and a new 5km marine channel designed to handle 366m vessels and capable of handling the largest container vessels in the world. Phase two will create 410m of additional container quay and a further dredging of the marine channel to handle 400m vessels.

DP World is also planning to develop a special economic zone next to the Port of Ndayane to further strengthen the attractiveness of Senegal to foreign investors, looking at the Ecowas region.

Cheikh Kante, Minister of State and Special Envoy to the President, said, "The development of the new port at Ndayane will enable Senegal to maintain its position as the maritime gateway to the region and play a significant contribution towards the realisation of H.E. Maky Sall's vision for an emerging Senegal."

Sultan Ahmed bin Sulayem, group chairman and CEO of DP World, said, "The new port will create jobs, attract new foreign direct investment to the country, and enable new trading opportunities that bring about economic diversification."

BRIEFS

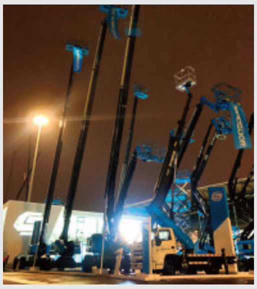


Image Credit: Sinoboom

The Sinoboom booth at bauma CHINA 2020.

Sinoboom launches boom lift

Sinoboom announced the launch of the hybrid articulating boom lift AB18HJ at bauma CHINA 2020. It provides lower emissions, reduced fuel consumption and up to one week's operation from a single charge and full fuel tank. Other new products on display included the TB20J Plus and TB28J Plus from the Plus series of telescopic boom lifts, which feature heavyweight load capacity. Further heavy-load boom lifts from the Plus series will be launched in due course.

Image Credit: Manitowoc

The Manitowoc cab offers improved ergonomics.

New driver's cab introduced

Manitowoc has introduced a state-of-the-art driver's cab "cab2020" on all Grove three-axle all-terrain cranes, the GMK3050-3, GMK3060-2 and GMK3060L-1. The cab2020 sets new standards in comfort and ergonomics for crane operators, meets the latest crash-test requirements in Europe and is ECE R29-3 approved. It shares the same compactness as the predecessor carrier cabins but offers an enhanced interior, improved ergonomics and feeling of space.

Volvo CE rolls out 10-tonne asphalt compactors

The DD105 and DD105 OSC asphalt compactors from Volvo Construction Equipment now come equipped with Tier 3/Stage IIIA engines for emerging markets.

Ergonomically positioned controls and joystick offers effortless maneuverability.

Image Credit: Volvo CE

Thanks to the integration of a Tier 3/Stage IIIA engine, the DD105 and oscillatory variant DD105 OSC double drum compactors are now available in emerging markets. These fuel-efficient and productive machines are equipped with an 86.3kW Tier 3/Stage IIIA engine that automatically adjusts output according to jobsite requirements, delivering power only when needed. Other smart features include Eco mode, which cuts fuel consumption by up to 30% without affecting performance, and an auto-idle function that reduces engine speed when the roller is stopped.

Comfortably productive

These robust machines are built to work hard but that does not mean they cannot be comfortable. Volvo Construction Equipment (Volvo CE) prides itself on designing machines with the operator in mind. The company makes some of the most comfortable – and therefore productive – machines in the industry and the DD105/DD105 OSC is no exception.

The ergonomically positioned controls and joystick guarantee effortless maneuverability, while the efficient climate system also helps keep the operator comfortable. The rear-mounted engine combined with a curved front glass panel and padded floor contributes to low levels of noise and vibrations within the cab for a smooth and quiet ride. Safety and ease of operation are enhanced by the expansive front windshield which maximises the view down to the drum and spray bars. The structural pillar supporting the roof is located at the rear of the cab, meaning the three front glass panels provide operators with an entirely unobstructed view of the road. When working close to obstacles, the fully adjustable operator station can rotate, and slide to the side of the cab to easily provide a view down the edge of the asphalt – increasing safety and rolling precision.

> "The rear-mounted engine combined with a curved front glass panel and padded floor contributes to low level of noise and vibrations within the cab for a smooth and quiet ride."

Smart technology, efficient compaction

The 10-tonne compactors come fitted with a 1,680 mm wide drum whose unique design halves the power needed to start the vibration system with no compromise on productivity. This reduces the operator's exposure to machine vibration while also ensuring a smoother finished mat.

Fitted with the flexibility of the Volvo oscillation technology – which eliminates vertical vibrations – the DD105 OSC offers high compaction performance while producing a non-damaging oscillation movement. This transfers less stress to the surrounding surface, enabling compaction in more delicate

KEY SPECIFICATIONS EWR130E

		DD105	DD105 OSC
Operating weight (Cab)	kg	10 400	10 178
Weight @ front drum	kg	5149	5161
Weight rear drum	kg	5251	5017
Drum width	mm	1 680	
Nominal amplitude (low/high)	mm	0.45 / 0.86	
Tangential amplitude (OSC)	mm		1.37
Vibration frequency (low/high)	Hz	40 / 50	
Oscillation frequency	Hz		39
Engine		Volvo D3.8E	
Rated power at installed speed		86.3 kW at 2,600 rpm	
Overall length	mm	4 650	
Overall height (top of Cab)	mm	3 000	
Overall width	mm	1 838	

> "Fitted with the flexibility of Volvo's oscillation technology, which eliminates vertical vibrations, the DD105 OSC offers high compaction performance while producing a non-damaging oscillation movement."

application areas, such as bridges, over pipes and close to residential areas. Additionally, when compacting against a cold joint, the risk of damaging the cold surface is reduced, and the material can be more effectively compressed to seal and protect the surface. The oscillatory movement of the drum can also improve surface smoothness, by re-aligning the material. To account for the increased wear on the drum surface, the Volvo DD105 OSC roller has a hardened, abrasion-resistant alloy steel drum shell, which increases longevity.

Also helping operators to achieve a high mat quality in less time is the Compact Assist function. Powered by the Volvo Co-Pilot display, Compact Assist provides access to a set of work-enhancing apps – including pass mapping and temperature mapping – which provide real-time insight into the work being undertaken. With easy access to clear and detailed data, the operator can eliminate any damaging over-compaction and ensure complete coverage of the working area.

Unrivaled uptime

The Volvo DD105 and DD105 OSC both feature an automatic water spraying system with triple filtration that provides uniform coverage and variable flow, as well as helping prevent material pick-up. Furthermore, the two water pumps alternate during normal operation. In the rare event of a pump malfunctioning, a constant flow of water to the drum surface is automatically retained. The large 740 litre water tank allows for increased refill intervals, also helping to keep downtime to a minimum. Moreover, the tank's low positioning affords the machine a low center of gravity for excellent stability and can be quickly and easily refilled at ground level.

The double drum compactors are designed for simple servicing and maintenance. The swing-up hood provides complete access to the engine and hydraulic components for efficient service inspections. Using a single key, technicians can access exterior service hatches, while fuses and relays are safely stored in the cab. With ground-level access to the engine, radiator, battery, and filters, daily checkpoints are unobstructed. When it is time to leave the jobsite and load into the truck, operators can rely on the Anti-Slip Control to avoid damaging the pavement.

To further optimise machine availability, customers can use CareTrack, the Volvo telematics system, to access a wide range of machine monitoring information designed to save time and money. When additional support is needed, the extensive Volvo dealer network is on hand to provide advice and solutions, which can help customers towards achieving their business goals and objectives. ■

Image Credit: Volvo CE

The 10-tonne compactors come fitted with a 1,680mm wide drum.

On the rebound: Construction market looks to a better year

Cautious optimism for Africa's construction sector hints at a recovery in 2021, though perennial issues such as limited access to finance remain. Martin Clark reports.

There is no denying the construction sector has been through a rough time amid the Covid-19 crisis, though its effects reach far beyond Africa. The chaos surrounding the pandemic and induced lockdowns has engulfed pretty much the whole world to some degree and yet there is still reason for cautious optimism moving into 2021.

According to industry research, almost half of companies expect to see growth return in key markets like Egypt in the coming year. Prospects in some of sub-Saharan Africa's big emerging markets, such as Ethiopia and Kenya, also look bright.

Yet it remains very much an unstable market - that's the consensus view in 'The Voice of the Construction Industry Outlook', an ongoing research project launched by events organiser The Big 5 in partnership with GRS Research & Strategy.

The project asked more than 3,000 construction industry professionals what 2021 had in store across the major markets of Africa and the Middle East. The results were mixed but it is possible to see some clear daylight returning as the new year dawns.

In many of sub-Saharan's Africa's big markets - South Africa, Nigeria, Kenya and Ethiopia - the primary challenge was no different to usual: lack of access to financial funding. Other key challenges noted included finding new projects, strong competition, collection of payments, as well as lingering travel restrictions. However, these did not sway opinion that is essentially strongly optimistic for 2021 compared to the previous year as

Africa and the Middle East experienced the shallowest growth downturns last year.

the pandemic played out. In Egypt, for example, nearly all expect better things this year in terms of growth, or at the very least, a more stable market. Economic growth was flagged as the single most important determinant for driving new business opportunities.

East Africa

Some of Africa's brightest prospects would appear to be the major markets of eastern Africa. The likes of Ethiopia, Kenya and Tanzania were performing well before the tumultuous events of 2020, attracting investment and recording strong economic growth.

In Kenya, there is anticipation that this year will see an uptick in activity. Over 70% of industry professionals see either an increase in activity over the past year, or at least a more stable market, compared to 2020. Around a quarter expect to see a further decline in activity.

Easily the biggest challenge facing this market is access to funding. At the same time, resurgent economic growth and a rising population are seen as important drivers for future construction activity. It is a similar situation in neighbouring Ethiopia, which had likewise recorded strong growth up until the pandemic struck. While lack of access to finance remains the number one challenge for firms, there is again significant hope that a rebound is coming in 2021. Roughly two-thirds think Ethiopia's construction market will see either a strong or slight increase in activity, or at least be more stable compared to the previous year.

West Africa

On the other side of the continent, West Africa's biggest economy, Nigeria, is experiencing a similar situation. Again, the vast majority of industry professionals see better things ahead than in 2020. According to the research, almost a third anticipate a strong increase in activity of over 15% or more, which would mark an impressive rebound after the events of the past year.

Just over a quarter of respondents said they expected to see a slight increase in construction activity, of up to 15%. A further 22.7% said they anticipated the Nigerian market to remain more or less stable this year. As always, the primary challenge for Nigerian building companies and their suppliers is access to finance, though other concerns include strong competition and sourcing new projects.

South Africa

Even in South Africa, there are similar hopes of a rebound, although it is facing other tests too. About three quarters of those surveyed expect either a strong or slight increase in activity during 2021, or at least for the market to be stable. Those who viewed the market slipping further back are in a small minority.

With lack of financial funding again cited as the number one block on business, it may well be that banks and other financial institutions have just as vital a role to play in facilitating any recovery. The consensus view of industry professionals seems to be backed by other findings too.

Back in November, Fitch Solutions also reported that global construction industry activity looked set for a rebound in 2021, after last year's contraction in 2020.

It noted that Africa and the Middle East experienced the shallowest growth downturns last year compared to other regions, the result of relatively muted outbreaks of confirmed Covid-19 cases and other market-specific factors that allowed for a recovery in activity levels even in late 2020. This comparatively modest impact perhaps means we should expect a more gradual recovery, especially in southern Africa, which is likely to underperform its regional counterparts through a much longer forecast period through to 2029.

A key drag on southern African markets, noted Fitch Solutions, is the heightened exchange rate risk, present in Angola, Zambia, and South Africa, which will serve to reduce their attractiveness for foreign investment. ■


NEW TD-25M
DRESSTA
TD-25M
HEAVY PUSHING.
NO SWEAT.
42 TONS OF PURE PERFORMANCE
WITH AN ALL-NEW FIRST CLASS CAB
SEE MORE, DO MORE WITH 33% MORE VISIBILITY
HIGH CAPACITY BLADES DESIGNED TO PUSH THE LIMITS
ENGINEERED FOR MINES, FORESTRY, LANDFILL & CONSTRUCTION
FIND OUT MORE: Email INFO@DRESSTA.COM or visit WWW.DRESSTA.COM
DRESSTA
ENGINEERED FOR YOUR BUSINESS

LINTEC & LINNHOFF LAUNCHES MOBILEMIX ASPHALT MIXING PLANT SOLUTION

Lintec & Linnhoff, a global manufacturer and distributor of leading-edge solutions for the production of asphalt and concrete materials, has launched the MobileMix Asphalt Mixing Plant. This is a highly mobile solution suitable for short-term projects or projects in remote locations that require constant relocations.

Reliable asphalt mixing plant solution.

Image Credit: Lintec & Linnhoff

Advantages:

- Quick mobilisation and demobilisation with four basic mobile modules on chassis designed to conform to standard road haulage.
- Energy saving, powered by a double screening drum technology that eliminates the need for hot elevator and vibrating screens.
- Fast set-up and dismantling with hydraulic powerpack unit, without heavy cranes and heavy-concrete foundations.
- Batch mixing system equipped with load cells to ensure precision and quality of hot mix asphalt.
- Environment friendly with pollution control unit utilising an ambient-air cleaning system.
- Plug-and-play convenience with quick couple cables and rigorous pre-shipment testing.
- Reliable performance from the combination of cutting-edge technology and high-quality materials and components.

CONCRETE WIND TURBINE TOWERS GET CHRYSO TREATMENT

In wind farms all over South Africa's Eastern Cape and Western Cape provinces, CHRYSO Southern Africa is adding value to the precast concrete segments used to construct the 100m tall wind turbine towers.

The average concrete turbine tower comprises 18 precast segments, each with a height of between 18 to 20m and a diameter of between 600mm and two metres. In the manufacture of these precast elements, the production speed and segment uniformity are essential. This demands high early strengths to ensure fast erection, while giving the towers an ability to withstand demanding fatigue loads. Wind turbines must also be able to perform in some of the country's harshest working environments, making durability a key requirement for the concrete mixes used in precast units.

The CHRYSO Fluid Premia range of plasticisers facilitates workability retention of between 30 and 45 minutes while achieving high early strengths. These early strengths allow for the fast erection of the towers owing to the quick turnaround time as the mould release and pre-stressing release can be done earlier.

The CHRYSO Fluid Premia range maintains consistency in the manufacturing of reinforced concrete components, reducing the sensitivity of concrete to variations in water content.

Plastic shrinkage cracking and plastic settlement cracking can occasionally penetrate deep into a precast unit. Applying a curing compound from the CHRYSO Cure Range to the precast segments can reduce the incidence of shrinkage cracks.

New Bobcat mini-excavators and loaders on city demolition

Demolishing a building in the centre of Milan requires specific prerogatives. The work must be carried out with surgical care, without damaging the adjacent buildings and without disturbing the residents, in full compliance with environmental and safety regulations.

This was certainly the case for the interior demolition in a prestigious five-storey building in the heart of Milan. To carry out this delicate work, the contractor, Seli Manutenzioni Generali Srl of Monza, chose to purchase a fleet of five new Bobcat compact machines comprising two E17z mini-excavators, an E10z mini-excavator and two S70 skid-steer loaders.

Thanks to their small dimensions and low weights, the three Bobcat mini-excavators, equipped with breakers and other attachments, easily dealt with the precision demolition of the floors and other structures to make way for new stairwells and lift shafts. One of the E17z mini-excavators was also used in the top-down mode to demolish the roof to create new floor levels for the building.

The two S70 skid-steer loaders were used to complete the process by handling and removing debris, unloading it into self-tipping bins, which in turn were moved with a crane.

The five compact Bobcat machines involved in the work inside the building were able to work comfortably even in the tightest spaces, where bulkier machines would not have been able to manoeuvre properly.

For Seli, the brand of choice for the machines to carry out this important demolition work was Bobcat. "We chose to purchase Bobcat skid-steer loaders and mini-excavators as we consider them to be extremely high performing and reliable," said Ivano Perego.

Bobcat's E17z mini-excavator in action at the Milan demolition site.

Image Credit: Bobcat

GROVE GMK5250L'S EASY MOBILITY DELIVERS PRECISE LIFTS

A Grove GMK5250L all-terrain crane configured with a 91m boom was chosen to lift and place metal structures to form the roof of a machinery warehouse at a mining facility in the Peruvian Andes.

Given the constricted workspace at the site, the 250-tonne capacity mobile crane was the suitable solution for the job, allowing other vehicles to still be able to use the same road where the crane was positioned. It was imperative the Grove crane could move out of the way at short notice, so that operations at the facility could continue without interruption.

"Our approach was for the team to be able to leave the work area when refinery vehicles needed to use the same access lane where the GMK5250L would be positioned," said Carlos Villacorta Canessa, general manager at ETAC Peru, which supplied the crane for the project. "The work had to be carefully planned and executed, given we needed to account for the time it took to assemble and dismantle the crane. The GMK5250L performed flawlessly, and we were able to complete the job exactly as planned."

Another challenge the crane helped operators overcome was moving the roof segments — some weighing up to 1.2 tonne — over massive oil tanks at the site, lifting and placing the parts over a 64m radius. The operation was possible thanks to the GMK5250L's 50° jib offset, compared to the usual 40°, which helps the crane reach further over obstacles.

Image Credit: Grove

Grove GMK5250L all-terrain crane.

Similarly, the crane's compact build allowed it to work at the confined jobsite with relative ease. The GMK5250L boasts 13.7m of chassis length, 7.8m of maximum outrigger width and five outrigger positions. It was configured with a 70m main boom and a 21m swingaway jib, totaling 91m.

Lorban TP chooses Liebherr R 945 for performance, flexibility and comfort

Lorban TP deals with the extraction and loading of limestone at the Carrières du Bassin de la Sambre (C.B.S.). These quarries produce 600,000 tonnes of limestone granulate annually for industry, construction and civil engineering.

Lorban TP was looking for a high-performance machine with short loading cycle times. The excavator was required to operate a hydraulic hammer, to break up the the rock, as well as a shovel to load it into the dump trucks. The company chose the new Liebherr Generation 8 R 945 crawler excavator to replace a Generation 6 R 946. The Generation 8 range of crawler excavators comprises seven models and was launched at Bauma Munich in 2019. The R 945 is the replacement model for the Generation 6 R 950 SME. These machines put a new architectural concept into application that has enabled optimised operating performance, comfort, ergonomics and safety.

The R 945 achieves higher outputs than the old R 946, and has an engine output of 220kW compared to the 200kW of its predecessor. The average fuel consumption is 28.5 litres per hour. The engine efficiency of the Generation 8 excavators meets the European standard of Exhaust Gas Stage V. The transition to idling and the start-up are controlled automatically.

The R 945 crawler excavator is equipped with an HDR bucket with a 2.5 cu m capacity for loading the granules into the dump trucks and can be fitted with a hydraulic hammer for crushing the rock. The machine was perfectly adapted to the company's requirements. It is equipped with a 6.15m long SME monobloc jib with SWA 66 hydraulic quick change system. The stability and dynamics of the excavator enable loading cycle times to be shortened, thus increasing production output. A loading cycle takes between 14 and 15 seconds. The time required to load an articulated dumper truck in the 30-tonne class is one minute and 20 seconds in seven cycles.

Increased productivity with a new Generation 8 excavator from Liebherr.

Image Credit: Liebherr

LEICA-READY FACTORY KIT FOR DOOSAN DX255LC-5 EXCAVATOR

Leica Geosystems and Doosan have announced the release of a new Leica-ready factory kit for the Doosan DX255LC-5 excavator with the new semi-automated excavator functionality.

Leica Geosystems introduced semi-automatic functionality for excavators which offers part or full automation of the boom, bucket, tilt bucket or tilt rotator.

Together with other automated features, such as iXE CoPilot and Automatic Tool Recognition, operators are able to work with less fatigue and a higher working comfort while digging, and reduce operational costs.

2D and 3D machine control ready kit with semi-auto functionality for Doosan excavators

To meet the increasing demand for machine guidance systems from excavator customers, Doosan is introducing a new ready kit for the Leica iXE2 2D andiXE3 3D excavator machine control solution, which enables tilt bucket or tilt rotator automation for Doosan's popular DX255LC-5 25.5 tonne crawler excavator.

Thanks to the collaboration between Doosan and Leica Geosystems, the new factory kit enables customers to order Doosan's wheeled and crawler excavators pre-configured to be ready for the installation of Leica 2D and 3D machine control systems. The Leica-ready kit includes all the components needed to install the new semi-automatic functionality for the DX255LC-5 excavator directly from Doosan's factory through Doosan Smart Solutions.

Cyril Ramaphosa confirmed for Mining Indaba Virtual

His Excellency, Cyril Ramaphosa, President of South Africa, has confirmed he will deliver the presidential keynote address at the Mining Indaba Virtual show from 2 to 3 February.

Following last year's announcements, Ramaphosa will be joining President of the Democratic Republic of Congo (DRC), H.E. Félix Tshisekedi and President of Sierra Leone H.E. Julius Maada Bio at the event.

Image Credit: GovernmentZA/Flickr

Cyril Ramaphosa, President of South Africa.

Ten months ago, the World Health Organisation (WHO) declared a global pandemic, in which South Africa has been praised for its hard lockdowns, ensuring the virus was contained. Almost all industries were disrupted and shutdown, including the mining operations within the country, excluding those supplying coal to power generator, Eskom.

Mining Indaba Virtual geared towards helping the industry build resilience and regrowth, while adopting a new mindset. Ramaphosa will take to the online stage to discuss South Africa, the mining economy and the way forward for the country, including opportunities for international investment in gold and PGMS, progress on the country's response to the global pandemic and ultimately, provide an update on South Africa's power generation and supporting independent generation for mining operators.

As the world starts to recover from the global pandemic, the South African Chamber of Commerce and Industry (SACCI) will remark on the government's plan to gradually reopen particular economic sectors, while continuing to diminish the Covid-19 virus.

The mining industry was one of the first to reopen, as it represents 8% of the country's GDP and up to 60% of South Africa's exports. Many of the large mining operators helped combat the virus by developing their own health and safety regimes, and worked closely with the government to transform facilities to help control the rise of Covid-19 cases.

This, coupled with the South African National Development Plan (NDP), the industry is set to help rebuild a capable state. The booming natural resources sector will be the key driver in the recovery from the pandemic while eliminating poverty and reducing inequality through significant job creation.

BOTSWANA GOVERNMENT RENEWS KAROWE MINING LICENCE TILL 2046

Lucara Diamond Corp and Lucara Botswana (Proprietary) announced that Botswana's Minister of Mineral Resources, Green Technology and Energy Security, Lefoko M Moag has approved the application to renew Mining Licence No 2008/6L in respect of its AK06 (Karowe) Mine.

The renewal was effective from 4 January, 2021 for a period of 25 years, securing Lucara's mining rights until 2046, and marks a critical step in the formal sanction of the Karowe underground expansion project.

Eira Thomas, president and CEO at Lucara Diamond Corp, said, "The receipt of our mining licence renewal and extension to 2046 is an important milestone for the Karowe underground expansion project, paving the way for the completion of a supplemental debt financing and full project sanction later this year."

The Karowe underground expansion project continued to advance in 2020 under a revised US$22mn budget in response to Covid-19.

EQUATORIAL GUINEA DRAFTS RECOVERY PLAN

Tasked with helping the Central African oil producer to overcome the challenges of the Covid-19 pandemic and the 2020 slump in oil prices, the Ministry of Mines and Hydrocarbons (MMH) of Equatorial Guinea has drafted a 100-day plan to push the oil and mining sectors forward and offer economic growth.

The two ongoing main projects in the country's overarching plan to create a natural gas driven downstream mega hub at Punta Europa seem to be on track. The backfill project meant to feed gas from the Alen field to the hub is 85% concluded, while the Punta Europa modular refinery is 90% concluded, according to an MMH evaluation report.

In a push to increase the contribution of the mining sector to GDP, the MMH has strived for clarity and reform in recent months. A new delimitation of the mining regions to be explored has been concluded, which should streamline the signing of new contracts with private sector players.

The Niefang mineral processing plant has been moving forward and is 80% concluded, while the preliminary studies for the construction of a mineral refinery in Kogo are also near completion.

A number of programmes were deployed to help local communities as well as open opportunities for entrepreneurs. Among others, a programme to support start-ups within the MMH is being implemented, while a miner's support programme, a fishing sector support programme and a new mining school are also being established.

Additionally, the MMH has drafted and concluded a new onshore drilling plan as well as preliminary studies to identify targets in its continental basins. Negotiations with Cameroon for the joint development of the Yoyo-Yolanda cross-border gas field have also been reactivated.

BRIEFS

Shanta Gold announces new appointment

Image Credit: Adobe Stock

Dobrotin was involved in the discovery of the high grade West Kenya Project.

Shanta Gold, the East Africa-focused gold producer, developer and explorer, has announced the appointment of Yuri Dobrotin as group exploration manager, which came into effect at the beginning of last month. Dobrotin is a global expert in gold exploration with 35 years' experience. He joins Shanta Gold from Barrick Gold where he was a senior district geologist in Tanzania. He was previously the geology manager at Acacia Mining's Kenyan operations.

Aton optimistic about Egypt's mining future

Image Credit: Adobe Stock

The minerals sector in Egypt is showing signs of development.

Mark Campbell, president and CEO at Aton Resources Inc, is optimistic about the company's plan for Egypt in 2021 .

"The year 2020 brought positive developments, both for Aton and for Egypt, but it brought some unexpected challenges. Instead of letting those challenges become distractions, we focused on getting back to work as soon as possible in 2021," added Campbell. Aton focuses on mineral exploration projects in the Eastern Desert of Egypt.

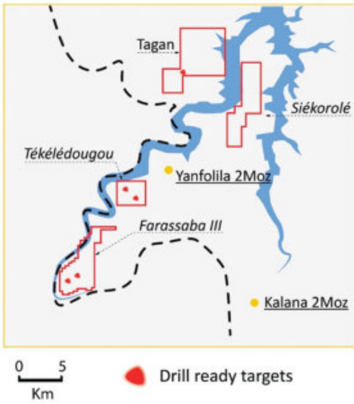
Cora Gold announces start of drilling programme in southern Mali

Cora Gold, the West African gold company, is pleased to announce the commencement of a drilling programme across its Yanfolila Project Area in southern Mali.

This follows previous positive drilling results within a 25km radius of the Hummingbird Resources Yanfolila Gold Mine.

Some 5,000m of Air Core drilling is planned across three permits at the Yanfolila Project Area: Tagan; Tékélédougou; and Farassaba III.

Bert Monro, CEO, said, "We are excited to be heading back with the drill rig to permits in the Yanfolila Project Area where we have historically had some very strong results, generally in shallow oxides. These results are further encouraged when you consider the proximity to an operating gold mine. We look forward to releasing the results as we receive them."



Yanfolila Project Area, West Mali.

Cora continues to advance a portfolio of projects located in two world class gold regions in Mali and Senegal in West Africa, namely the Yanfolila Gold Belt and the Kedougou-Kenieba Inlier gold belt. This is in addition to its flagship Sanankoro Gold Discovery, which this year received a US$21mn mandate to fund its future development as a highly profitable standalone oxide mine.

During H1 2020, exploration included the use of Cora's owned and operated rotary air blast (RAB) drill rig at the Tagan permit within the Yanfolila Project Area. Panning of the RAB samples provided a semi-quantitative evaluation technique for identifying primary gold bearing structures. The combination of visible gold with quartz veining, observed in RAB samples, points to the presence of primary gold structures, with lengths exceeding 800m.

SEEQUENT UNVEILS DIGITAL TWIN TOOLKIT UPDATES

Geoscience software company Seequent has revealed major updates to its mining portfolio, which are focused on improving user productivity to solve their geoscience challenges and further enable connectivity and collaboration between users and their stakeholders.

Included in this major release are updates to Leapfrog Geo for 3D geological modelling and visualisation, Leapfrog Edge for resource modelling, and cloud-based Seequent Central for model management and collaboration.

The releases, which represent Seequent's biggest update to its mining portfolio in more than a decade, include technologies that will ensure a smooth and seamless transition to Seequent Evo, its new ecosystem of hybrid cloud and desktop solutions.

Seequent's chief technology officer, James Lawton, said, "As projects become complex, organisations are generating greater amounts of data. We want to enable organisations in their digital transformation journey and enhance productivity."

Transforming the energy landscape

The rise of hybrid power solutions and microgrids is transforming the energy supply picture for cities, and at many of Africa's big mines, helping to trim costs and reduce environmental footprint. Martin Clark reports.

Wärtsilä builds paths towards a 100% renewable energy future.

The average gold, copper or diamond mine gulps huge amounts of energy.

Powering this industry has long been a challenge, especially in areas where there is no reliable electricity – commonplace for remote areas in Africa, where mines are often located.

Even where it is possible to hook up to the national grid, operators have wanted the security of large diesel generating sets (gensets) to underpin production in the event of an interruption to network supply.

But the evolution of new renewable technologies, such as solar and wind energy, is having a disruptive effect on traditional mining power solutions.

Growing pressures to meet environmental targets are further fuelling the transformation.

It has resulted in a host of hybrid power plants grouping traditional thermal-based gensets, with grid supply alongside clean energy alternatives.

As well as ticking all the right environmental boxes, there is the potential to reduce overall energy spend – always high on the priority list for any mine boss.

Fekola mine

Perhaps one of the best examples is Mali's Fekola gold mine.

Canada's B2Gold, the operator, won two sustainable mining awards at the end of last year for its work in West Africa, where it pioneering the use of hybrid power.

The off-grid mine is looking to reduce energy costs, CO_2 emissions and boost power reliability with an energy plant that integrates a host of innovative features, combining both solar and heavy fuel oil (HFO) engines.

Finland's Wärtsilä has designed and engineered a cutting-edge 15MWh energy storage system based on the company's GEMS energy management solution. It had earlier completed a similar project for a gold mine in Burkina Faso.

The mine operator is also building a 30MW solar PV plant to add to an existing 64MW of thermal capacity with the help of Suntrace and BayWa r.e.

Work was delayed on the US$38mn project by Covid-19, but remobilisation of the Fekola solar plant construction group began in mid-September, the company reported at the end of last year.

The target date for completion of the solar plant is currently the end of the first quarter of 2021, subject to potential Covid restrictions affecting the workforce and site support.

Hybrid plants

It is not the first time the Canadian miner has pioneered in this area though, after building a combined 24MW solar/HFO hybrid for its Otjikoto gold mine in Namibia in 2018.

Changing the power plant to an HFO solar hybrid plant meant cutting Otjikoto's HFO consumption by approximately 2.3 million litres and associated power generation fuel costs by 10% in the first year alone.

While it is great from an environmental standpoint, it is also driven by good financial sense.

Indeed, others too are taking on the commitment to responsible mining by investing in new hybrid energy systems.

Resolute Mining is currently building a solar HFO hybrid modular power station at its Syama mine in Mali, in partnership with Aggreko, which had been providing and operating a 28MW diesel power plant on the site.

In an October update, the mining firm said commissioning of the battery storage system and first engine is expected to be completed soon, with the engines shipped via the port of Abidjan in Côte d'Ivoire.

At current fuel oil prices, the projected cost of energy remains below US$0.15 per kilowatt hour (kWh), the company said – the current cost of energy at Syama ranges from US$0.23/kWh to US$0.26/kWh depending on diesel prices.

"The new power station will deliver cost-effective, environmentally friendly, capital efficient power and long-term electricity cost savings of up to 40% while reducing carbon emissions by approximately 20%," it added.

> "The new power station will deliver cost-effective, environmentally friendly, capital efficient power and long-term electricity cost savings of up to 40%."
>
> **RESOLUTE MINING**

Aggreko advances

The new Syama plant is being funded and operated by Aggreko, with limited capital outlay from Resolute Mining, under an innovative 16-year deal structure.

Stage one of the scheme will comprise three 10 MW thermal Wärtsilä modular blocks plus a 10MW battery storage system, that will provide spinning reserve displacement and balance sudden jumps in load.

The second stage will consist of the installation of an additional 10MW Wärtsilä modular block in 2022 and the addition of 20MW solar PV power in 2023.

Like mining firms, power companies too are having to adapt to the times, where technology opens new doors and environmental concerns close off others.

Aggreko recently launched a solar rentals business to complement its traditional work in thermal-based power. A world-leader in mobile, modular power, temperature control and energy services, it can now provide from 1MW PV to clients wherever required.

The solution is optimised for weak or off-grid applications – such as mine sites – and delivers clean energy innovation without long-term financial or technical commitment.

The first installation was at the Granny Smith gold mine in Western Australia, in which a new hybrid system is powered by more than 23,000 solar panels, supported by a 2MW/1 MWh battery system on top of Aggreko's existing 27MW gas-fired power station.

This set up is expected to reduce the mine's overall fuel consumption by up to 13%. ■

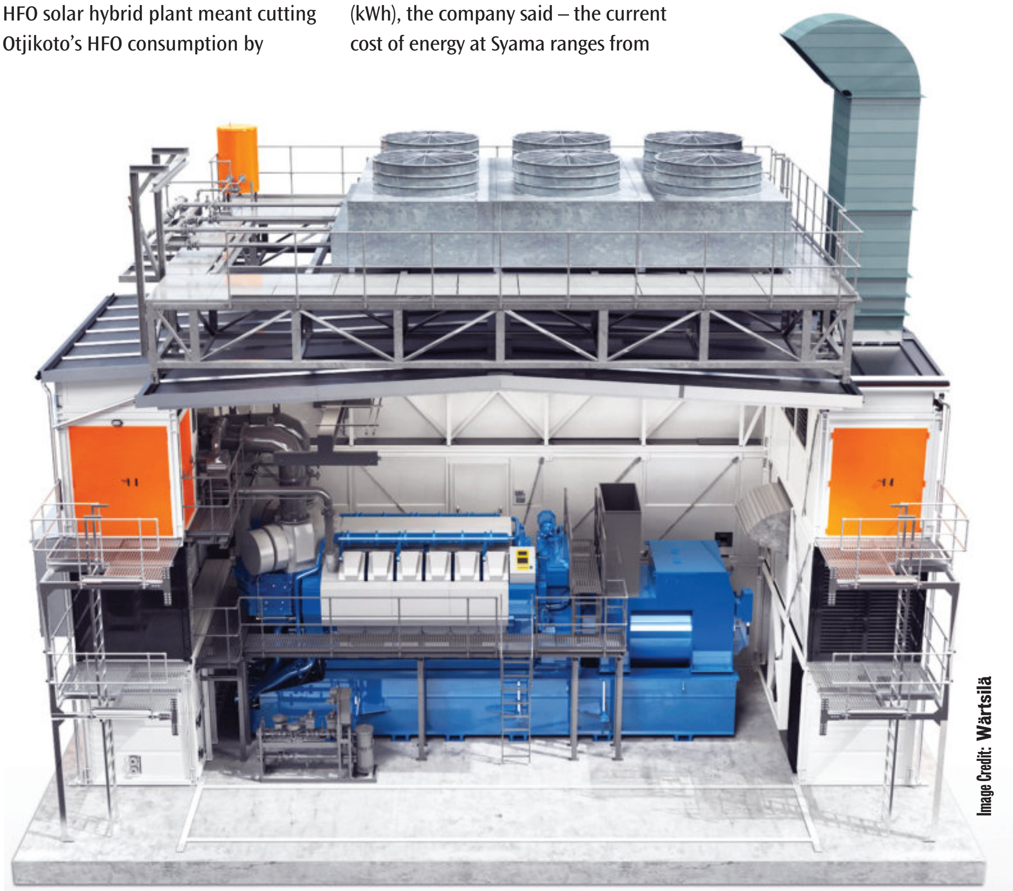


Image Credit: Wärtsilä

The Wärtsilä modular block is a pre-fabricated, modularly configurated and expandable enclosure for sustainable power generation.

The new Cat DE400 GC diesel generator.

Image Credit: Caterpillar

Caterpillar announces standby power solutions for the global electrical contractor market

The 31 new models of Cat GC diesel generator sets have been launched worldwide, available for 50 Hz and 60 Hz applications.

The new Cat GC diesel generator sets have been designed to simplify the specification process and substantially reduce quotation and delivery times while also helping to meet the tight budget requirements of the vast majority of stationary standby power applications in the 50-60 Hz power range. Select models with commonly specified power outputs and configurations are stocked at larger Cat dealer locations for immediate pickup and delivery.

Optimal performance

Powered by field-proven Cat engines and offering support from the global Cat dealer network, the Cat GC generator sets are ideal for most standard small- to medium-sized standby applications, such as health clinics, manufacturing, agriculture facilities, municipal infrastructure, wastewater treatment plants and other utilities, commercial enterprises and office buildings.

"The electrical contractor market is responsible for commissioning the largest share of standby power solutions for small- to medium-sized standby applications," said Jason Kaiser, vice president of Caterpillar Electric Power. "We have specifically configured the Cat GC generator sets with electrical contractors in mind, and we have now designed a product that offers Caterpillar's renowned performance at an exceptional value."

Features included:

- 11 with power ratings from 33 to 400 kVA for 50 Hz applications globally
- 11 from 40 to 200 kW for 60 Hz applications in North America
- Nine from 30 to 175 kW for 60 Hz applications outside North America.

Designed and manufactured to Caterpillar's standards for efficiency, reliability and productivity, Cat GC generator sets are configured with an optimised mix of common features that deliver Caterpillar's renowned performance and excellent customer value with a minimal footprint.

The Cat GC generator range

The new models join the current range of eight Cat GC generator set models from 250 kW to 600 kW for 60 Hz applications in North America, as well as the 1100 kVA model for 50 Hz applications in Europe, Asia Pacific, Africa and the Middle East.

Every Cat GC diesel generator set includes Caterpillar's standard two-year warranty for standby power solutions, while a suite of additional extended service coverage options is available. They can be equipped with Cat Connect Remote Asset Monitoring, which provides data visualisation, reporting and alerts that are globally accessible through a web interface.

Caterpillar offers product support globally, with parts and service available through the Cat authorised service and dealer network. ■

> "We have now designed a product that offers Caterpillar's renowned performance at an exceptional value."
>
> **JASON KAISER, VICE PRESIDENT OF CATERPILLAR ELECTRIC POWER**

The future of energy for Independent Power Producers

Aytek Yuksel, content marketing leader for Power Systems at Cummins, outlines the importance of Independent Power Producers (IPPs) accommodating the growing demand for installed electrical capacity over the next two decades, and reveals five key insights every IPP needs to know going forward.

The International Energy Agency annually has released its World Energy Outlook, with the aim of deepening our understanding of the future of energy. This report is over 800 pages long and looks at the themes around the future of energy. Here are five key insights from the report every IPP should know when it comes to the future of energy:

The world's electrical installed electrical capacity needs to grow by 80% from 2018 to 2040.

Electricity use grows faster than energy demand

Demand for energy is forecast to grow 1% a year until 2040, while electricity use is forecast to grow twice as fast. This increased demand for electricity will strengthen its position as the second most popular choice of energy in final consumption, challenging oil's position at the top. A mix of technologies will fuel this transition, where solar photovoltaic (PV) and wind will take the lead. By 2040, more of our electricity will be through renewable sources than fossil fuels.

Demand for power infrastructure flexibility grows faster than the demand for electricity

Renewable technologies bring astonishing benefits in terms of zero carbon emissions, but also introduce the challenge of flexibility. The continually increasing share of renewables in our energy infrastructure translates into an increasing share of variable electricity generation. Meanwhile, consumers are increasingly using electricity for cooling and to fuel their cars, changing the electricity demand profile. A combination of these two results in an increased need for power-system flexibility. As traditional power plants and interconnections continue to be the key levers to deliver flexibility, gas-fired generation grows across most regions. The expanding availability of natural gas and its relatively cheaper price fosters this growth. IPPs bring to life the solutions to address the increasing demand for energy and electricity.

Africa offers vast opportunities for power producers

Demand for electricity generation is forecast to grow in Africa faster than any other region. A mix of factors, including over half a billion people to join the continent's urban population, increased access to electricity and expanding mineral extraction activities, drive this demand. Africa is also well-positioned to find the fuels to fulfil this need. On the renewables side, Africa is solar-rich, yet only less than 1% of the world's installed solar capacity is in Africa, offering vast opportunities for power producers. When it comes to low-carbon fuels, Africa has benefited from recent discoveries of gas deposits. In fact, 40% of global gas discoveries from 2010 to 2018 were in Africa.

> "Demand for electricity generation is forecast to grow in Africa faster than any other region."
>
> AYTEK YUKSEL, CONTENT MARKETING LEADER FOR POWER SYSTEMS AT CUMMINS

There are two sides of the scalability story for renewables

The installed base of PV has grown over recent years and is forecast to account for more installed capacity than any other energy source by 2040. Meanwhile, scaling up solar PV results in more electricity produced around the same time of the day in a given region. This could be interpreted as decreasing the value of additional electricity production as the solar PV installed capacity increases (according to Hirth), unless there is enough installed base of energy storage batteries to redeploy electricity produced for another time of the day. While offshore wind becomes the star performer when it comes to scalability, thanks to its high average annual capacity factor. Offshore wind's annual average capacity factor is already comparable to gas-fired power plants in many regions and better than other variable renewables. This means the growth in installed base in offshore wind would not result in a diminishing value of electricity output.

Battery storage technologies will become an integral part of energy infrastructure

Energy-storage batteries are projected to be the rising star in building our energy infrastructure, thanks to advancements in battery technologies and decreasing costs. It is estimated there will be a forty-fold increase in battery storage capacity by 2040, faster than almost every other mainstream technology. Increased use of energy-storage batteries will impact how we manage the intermittent nature of solar and wind. Scaling up solar PV results in producing more electricity around the same time of the day in a given region and could reduce the value of additional electricity production. Meanwhile, both solar PV and batteries could address this challenge. While the addition of batteries increases the levelised cost of electricity (LCOE), the LCOE for solar PV and batteries is forecast to be competitive with fossil fuels. ■

Battery metals: The new gold for West Africa?

As part of the Africa Mining Forum 2020 Alfonso Tejerina, executive director at Global Business Reports, hosted a panel discussing how West Africa could benefit from the growing battery market. By Robert Daniels.

Image Credit: Adobe Stock

The panellists discussed whether the future of West African mining lay outside gold.

West Africa is famous for its gold production, providing more than 8% of the world's supply. It is where the majority of mining infrastructure in the region is focused and is dominant in attracting foreign projects and investment. In the shadow of this industry, it can be difficult for mining projects focused on other materials to generate attention and receive adequate funding, but this needs to change, according to George Arhin, partner and west market mining leader at PwC.

He explained to fellow panellists at the Africa Mining Forum, held on 16-20 November, how West Africa cannot only depend on one resource, economic diversity was key, and the battery market presented an excellent opportunity for expansion outside of gold.

In 2019, the battery metal market was worth US$14.8bn, and is projected to hold an accumulative growth of 2.4% over the next few years, which is driven by continued emphasis on emission reduction and electrical vehicles.

As George Heppel, senior analyst at the CRU, explained to the panel, economic turmoil, high consumer debt, potential austerity plans and risk of unemployment in the wake of the pandemic could have stalled this growth dramatically, but this was not the case. Instead countries and companies renewed their climate change aspirations.

Green agenda

Central to these green targets is electrical transportation, which means batteries and their component elements will remain in high demand for the foreseeable future. Heppel suggested that the global demand for cobalt could increase 2.4 times, and nickel and lithium 3.3 times, respectively.

Africa, especially west African countries, have the potential to tap into this growing market and demand as they have an abundance of such resources. However, to do this, there needs to be investment and potential financiers to ensure fiscal stability.

Bernard Michael Aylward, CEO of Kodal Minerals, who also joined the panel, outlined the need for a good legal framework and strong government support to achieve this. He cited Mali, where Kodal Minerals are awaiting approval for a new facility at Bougouni, as a good example where there are established bureaucratic channels. Despite the recent coup, good relations have been maintained and the project is still moving forward. Other west African countries are following this example, and the panel believed this will be fundamental to exploiting this market and reaping the economic benefits.

> "There is a future for Africa in the battery metal market, but there is a bigger future for West Africa."
>
> **GEORGE AHRIN, PARTNER AND WEST MARKET MINING LEADER AT PWC**

In his closing statement, Ahrin provided an uplifting tone by saying, "There is a future for Africa in the battery metal market, but there is a bigger future for West Africa. We are looking forward to working together and bringing these untapped resources to benefit Africa." ■

Bobcat launches new generation rotary telehandler range

Bobcat has collaborated with Magni TH of Italy to launch an expanded line of new generation rotary telehandlers for markets in Europe, the Middle East and Africa (EMEA).

Bobcat has announced a new generation rotary telehandler range for African markets.

Image Credit: Bobcat

The new Bobcat rotary telehandler range includes ten Stage V compliant models for the European market, with lifting heights from 18 to 39 metres and lifting capacities from 4 to 7 tonnes. These are complemented by another four Stage III. A engine powered models aimed at the Middle East, Africa and Russia/CIS regions with lifting heights from 18 to 25 metres and lifting capacities from 4 to 6 tonne.

Olivier Traccucci, Bobcat Telehandler senior product manager, said, "Our new rotary telehandler range offers an expanded model selection and increased lifting heights and lifting capacities. The new range offers cutting-edge technology that continues the theme of reinvention that is at the core of our 'Next is Now' philosophy. As a result, they offer enhanced 360° performance to create the ultimate tools for even the most complex site handling jobs. A big choice of over 20 attachments and various options also ensures that working at height has never been so versatile, efficient, comfortable and safe."

Available to order now with some of the machines already delivered in Europe, the new rotary telehandler range from Bobcat was introduced at an online launch event held on 2 December, 2020. This was a continuation of the 'Next is Now' strategy presented for the first time in EMEA and Russia/CIS at a previous online event in October 2020, where Bobcat launched 48 products in 12 different categories.

Unbeatable cab experience

As in all Bobcat products, operator comfort is a prerequisite in the new rotary telehandlers, and the innovative patented design of the cab is key to working safely on site, providing:

- A fully pressurised environment
- 100% air filtration
- Heating and air conditioning (except TR40.180)
- Large windows for optimal visibility
- ROPS/FOPS certification
- An easily adjustable steering column
- A comfortable, fully adjustable seat.

In the cab, all Bobcat rotary telehandlers are equipped with a large, bright touchscreen display with intuitive machine controls. Machine settings are managed over five different pages. Navigating between these pages is extremely easy and intuitive using the touch screen or the jog shuttle.

> "The new range offers cutting-edge technology that continues the theme of reinvention that is at the core of Bobcat's 'Next is Now' philosophy."
>
> **OLIVIER TRACCUCCI, BOBCAT TELEHANDLER SENIOR PRODUCT MANAGER**

Attachment versatility

In Bobcat rotary telehandlers, attachments are almost as important as the machine itself, as they provide the versatility needed on site. The attachments are usually forks (supplied as standard), crane jibs, winches or jib winches, man platforms and buckets.

Bobcat naming scheme

Taking the TR60.250 model as an example, Bobcat rotary telehandlers are named, according to the product line [(T)elescopic (R)otary], lift capacity (6.0 tonne) and lift height (25m).

In MEA and Russia, the range comprises the TR40.180, TR50.210, TR60.210 and TR60.250 models. ■

World's largest hydrogen mining truck in progress

As the mining industry takes strides towards becoming more sustainable, Anglo American is leading the way, with its plans to develop the world's first hydrogen-powered mining haul truck. Samantha Payne reports.

Anglo American hit the headlines two years ago when it announced it would be developing the world's first hydrogen-powered truck as part of the company's innovative FutureSmart Mining programme and vision towards operating a carbon-neutral mine.

It will be a Fuel Cell Electric Vehicle (FCEV), an ultra-class mining haul truck, a first of of its kind, built to help Anglo American meet its target to reduce global greenhouse gas emissions by 30% by 2030.

Speaking to African Review, an Anglo American spokesman said,"The [FCEV] project is progressing well, and we are currently building the electrolyser to produce hydrogen on site, which will support the hydrogen electric ultra-class haul truck."

The trial first began in 2019, but the pilot project was delayed due to the coronavirus pandemic. It is now back on track, with the 'first motion' of the hydrogen-powered truck being retrofitted with eight Ballard FCveloCity®-HD 100 kW modules in 2021, with the first hydrogen expected in the second quarter of the year.

A giant Komatsu 291 t 930E truck will be stripped of its diesel engine and fitted instead with the hydrogen fuel cell modules and lithium-ion battery system, which is controlled by a voltage power distribution unit.

The battery system is being supplied by Williams Advanced Engineering (WAE), which was announced in February last year.

Nel Hydrogen Electrolyser is delivering the 3.5 MW electrolyser.

The electrolyser, which uses electricity to split water into hydrogen and oxygen, can reportedly produce up to 1,000kg of hydrogen per day.

The combination of power

An example of a mine haul truck that will be converted to using hydrogen.

Image Credit: Anglo American

generated is divided between 800 kW of fuel cells and a 1.1 MWh battery to provide a peak power of over 2 MW, according to reports.

An added bonus is that the battery system will be able to recover energy as the haul truck travels downhill through regenerative breaking, and night time storage of fuel will be available as the electroyser plant will be producing more fuel than the truck's daily demand, maximising hydrogen usage.

Testing programme

After the hydrogen modules have been placed in the pilot truck, there will be a testing and validation programme at Anglo American's platinum group metals open-pit mine in Mogalakwena, South Africa during the second half of 2021, after which the trucks are expected to be deployed at other Anglo American operations. This could include more than 400 of Anglo American's giant mining haul trucks being converted to using hydrogen fuel.

ENGIE, a leading global energy and energy services company, has collaborated with Anglo American on the project by providing the hydrogen generation solutions while Anglo American is developing the truck.

The converted trucks are expected to perform better than diesel-run trucks while providing cleaner air, less noise and lower maintenance costs.

On the announcement of the partnership, Tony O'Neill, Technical Director of Anglo American, said, "We are extremely pleased to be partnering with ENGIE and we look forward to developing and implementing this step-change technology.

"This is part of our plan to create a smart energy mix that moves us closer towards our carbon and energy targets for 2030 and, ultimately, our vision of operating a carbon-neutral mine."

> "The solution aims to help decarbonise the mining sector."
>
> MICHELE AZALBERT, CEO OF ENGIE'S HYDROGEN BUSINESS

Michele Azalbert, CEO of ENGIE's hydrogen business, added, "The solution aims to help decarbonise the mining sector. Anglo American's global footprint and its journey to operational carbon neutrality are aligned with ENGIE's strategy to develop large-scale integrated hydrogen solutions in local and global markets."

Meanwhile truck giant BELAZ is reportedly developing an all battery-powered truck in the 90t class, based on its 7558 base model. When built, it will be the world's largest all battery mining vehicle.

Other hybrid trucks in development includes Weichai's 200t hydrogen fuel cell battery-powered mining truck, which will be coming off the factory line in the second half of this year, following a successful pilot in 2019 in partnership with CRRC Yongji.

E-mining is reportedly developing a 100t all battery model, using a Komatsu HD605-7 truck.

The global mining machinery market size is projected to reach US$36.2bn by 2025, from an estimated value of US$29bn in 2020, at a CAGR of 4.5%, with electric machinery, in particular, driving this market growth, according to report: *Mining Machinery Market by Category, Application, Propulsion, Power Output, Electric Machinery, Autonomous Machinery and Region – Global Forecast to 2025.* ■

LARGEST SCREENS BUILT BY WEIR MINERALS AFRICA HEAD TO NIGERIAN MINE

Two of the largest screens built by Weir Minerals Africa are being designed and manufactured in South Africa as part of a process solution for an iron ore mine in Nigeria.

According to Tiisetso Masekwameng, general manager comminution at Weir Minerals Africa, the flowsheet accepted by the customer includes equipment for screening, washing, and grinding supplied by Weir Minerals.

"Within our scope of work are the two largest Enduron double-deck banana screens built by Weir Minerals," said Masekwameng. "This is made possible by the depth of design expertise in our Separation Technology Group, an eight-strong team conducting research and development."

Steven Hunter, separation technology group leader at Weir Minerals Africa, says the two 51-tonne Enduron double-deck banana (DBHG 43/97) screens for this project were built upon the designs of the Weir Minerals existing screens range. These large machines measure 4,3 metre wide and 9,7 metre long and can process 1,750 tonnes per hour.

"The customer's production requirements demanded this considerable size, so we optimised the design by minimising mass without compromising structural integrity," said Hunter. "We conducted extensive finite element analysis (FEA) on the whole machine but focused on the main structural elements, ensuring that the units were fit-for-purpose while still being light enough to be driven by the exciters."

Nonetheless, the size of the units still demanded the design and manufacture of Weir Minerals Africa's largest exciter yet – the Enduron LTX 10. With 120 tonnes of excitation force, these units will drive the screens at a stroke of 9,4 mm and a gravitational force of 4,6 G. The research and manufacturing teams contributed to the development and testing of the Enduron LTX 10 exciters.

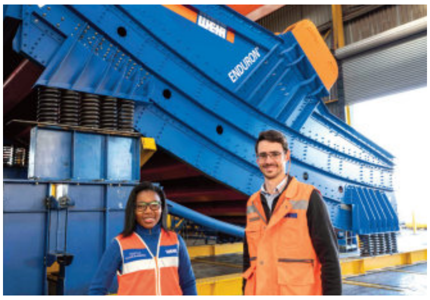


Image Credit: Weir Minerals Africa

Tiisetso Masekwameng, general manager comminution, and Steven Hunter, technology group leader separation at Weir Minerals Africa.

Absolute material control key in mill feed

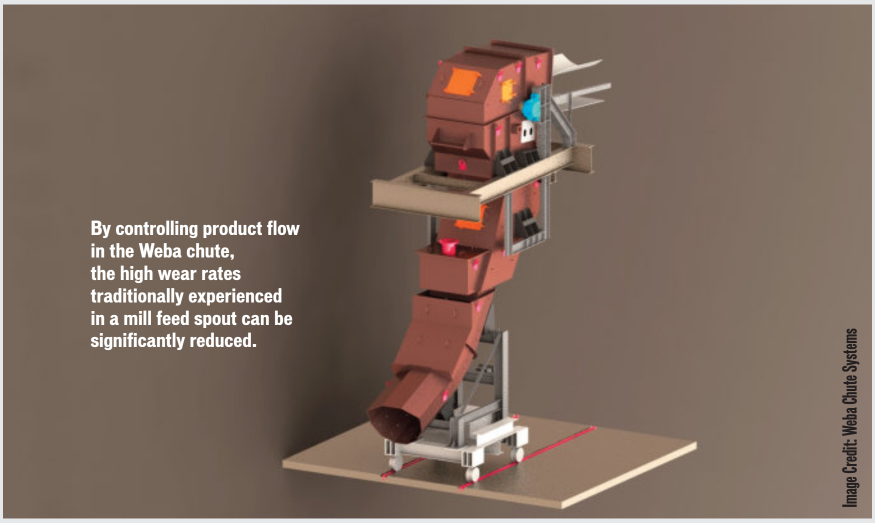
Mill feed transfer points and scrubber feed chutes are traditionally considered high wear and high maintenance installations. However, Alwin Nienaber, technical director at Weba Chute Systems, says by engineering the transfer point to ensure the correct control of material feed into the mill or scrubber it is possible to significantly reduce wear and tear, and consequently maintenance.

Nienaber explains that the transfer point into the mill or scrubber is critical with problems often arising due to the nature of this application. "This area of the plant is subjected to high velocity, which can cause excessive wear and tear and is linked directly to the speed of material being transferred through the chute."

Large quantities of water required for the milling process are fed with the material into a mill or scrubber chute. In ball mill applications, steel balls are also fed through the chute into the mill itself. Traditionally, mills are lined with either cast high chrome, manganese or rubber liners, and even though mill feed chutes may have similar lining materials applied, these are not always sufficiently robust to counter the excessive wear caused by uncontrolled discharge of materials.

"Another challenge in this application is the interface between the stationary chute and the rotating mill," said Nienaber. "Uncontrolled discharge of bulk materials and water will escalate the cost of maintenance, and could result in other related problems, all of which could add up to unnecessary expenditure and added aggravations for the engineers concerned."

Weba Chute Systems & Solutions has decades of experience in assessing individual applications and providing a solution that will meet the operating parameters and contribute to achieving the lowest cost per ton for the mine.



By controlling product flow in the Weba chute, the high wear rates traditionally experienced in a mill feed spout can be significantly reduced.

Image Credit: Weba Chute Systems

KWATANI GROWS ITS BASE OF SCREENING SOLUTIONS

As leading vibrating screens and feeders specialist Kwatani has transitioned from equipment supplier to solutions provider, it has attracted customers from well beyond South Africa and even outside Africa.

According to Kwatani general manager sales and service, Jan Schoepflin, the company's strong in-house expertise and design capability – combined with the world-class manufacturing quality it consistently achieves – ensures its solutions deliver optimal performance at the lowest possible lifecycle costs.

"Our orders show our customer base in Southern Africa remains strong, while there is growing recognition of our cost-effective offerings in West Africa, East Africa and North Africa," said Schoepflin. "At the same time, orders from countries like Canada and Russia indicate that our markets abroad continue to grow."

Kwatani remains the market leader in the supply and servicing of vibrating screens and feeders on iron ore and manganese mines in South Africa's Northern Cape province. It also counts platinum, coal, diamond and gold mines in its customer base. Its West African orders have been mainly to gold mines, and there is growing potential for gold mining in East Africa, he said.

Over its four decades of operation, Kwatani has produced about 16,000 custom-designed screens, and is building on average 30 to 40 units a month in its ISO 9001:2015 certified facility close to OR Tambo International Airport in Johannesburg.

"Our reputation has been built on prioritising what our customers need, and doing business with integrity and trust," Schoepflin said.

WISA 2020 calls for trust in youth for solutions

The inclusion of youth professionals in the water sector was a major theme as the Water Institute of Southern Africa (WISA) Conference and Exhibition 2020 came to a close on 10 December. Robert Daniels and Samantha Payne report.

The WISA Conference and Exhibition was held online for the first time in its history.

Image Credit: WISA

During the WISA 2020 closing ceremony, Neil Louw, deputy lead of the Gauteng Committee of the Young Water Professionals, and Marlene Van Der Merwe-Botha, chair of the technical committee for WISA 2020, both acknowledged the excellent role that young professionals play in the water sector, but said they were unappreciated, and should be involved in decison-making and creating solutions.

Louw said, "At the moment it is new problems but old solutions. We need solutions from fresh minds that have grown up in a digital age who can approach problems from different angles. Young people also bring diversity and this can only benefit the sector and the country, bringing new ideas and new visions, which we need."

He added that while young water professionals have repeatedly proved their capabilities, as many of them had done across WISA 2020, they need to be shown more trust at higher levels.

He pointed out, "We need to get young people involved in the decision-making process. Why not have a panel and committee and take young people under their wing and get them involved in the decision-making?"

The two speakers then addressed other key lessons that had emerged from WISA 2020. Many participants had mentioned 'African problems require African solutions'; a phrase that recognised the increased need for innovation and collaboration within the South African water sector. There is a plethora of 'ivory tower university research' being produced, (as was showcased in several student presentations throughout WISA 2020), but it is struggling to make its way into ground level solutions.

There are also hundreds of graduates struggling to find employment in the water industry, with many companies reluctant to employ them, believing they lack practical experience. More collaboration between the industry and universities would result in cutting-edge research being used to solve water issues within South Africa and address the lack of skills within the industry.

Louw noted the worrying trend that the innovative solutions that are being developed, were failing to make their way to smaller municipalities, instead only larger, better financed water providers were benefiting, leaving others behind. This problem is enhanced by continued high levels of corruption within the sector and while change is starting to manifest, it remains a recurring issue.

> "WISA will formulate a research paper to produce solutions and put them forward to South African leadership."
>
> **NEIL LOUW, DEPUTY LEAD OF THE GAUTENG COMMITTEE OF THE YOUNG WATER PROFESSIONALS**

To incorporate these together, Louw suggested that the industry had to turn government regulation from one of 'reaction' to one of 'proaction'; to implement these innovative ideas and take hold of rigorous planning so that South Africa is prepared for the next crisis, rather than struggle with it when it comes.

Merwe-Botha concluded, "Let's ensure the hard work of WISA 2020 does not go undone. From our side, WISA will formulate a research paper to produce solutions and put them forward to South African leadership. We will attempt to establish leadership positions for young professionals to get their voice through. Let's keep committed and keep supporting this sector. Let's get organised, keep our hands on deck and keep sharing knowledge." ■

OTHER WISA 2020 HIGHLIGHTS

Managing drought: Cape Town

As part of the Water Institute of Southern Africa (WISA) Conference and Exhibition 2020, a talk was held on the lessons learned from the recent Cape Town drought.

After consecutively experiencing three of its driest wet seasons on record between 2015 and 2018, Cape Town suffered in 2019 an acutely damaging drought which saw water storage levels drop to close to 20%. There had been similar occasions of dry periods in the past few centuries, but this disaster was particularly severe and raised questions about the city's planning and maintenance.

Lloyd Fisher-Jeffes, engineer at Zutari, guided attendees through the evaluation process after the drought, which featured validation models to investigate which components of the system required updating and an extended scenario analysis by generating synthetic future rainfall.

From their research, it was clear that climate change was set to have a drastic effect on the future of water supply for Cape Town, with the city starting to plan for the most severe scenario of around 23% decrease in water yield.

Image Credit: Adobe Stock

Storm water harvesting was put forward at WISA 2020 as a possible way to expand water production sources.

Lessons learned

From the experiences of the 2015 drought and the subsequent investigations, Fisher-Jeffes identified the key lessons learned which can be taken forward to offset drought in the future. He noted that short-term solutions such as building out of a drought offer little more than doing nothing, and often lead to the creation of costly and inefficient facilities that must be maintained in the future. Instead attention should be focused on proper, data driven planning to implement long-term augmentation; maintenance, monitoring and management; and, particularly, the clear communication of the insurance of water supply.

On the final point, Fisher-Jeffes stated, "You need to ensure water to a high concentration of people, but this can lead to agriculture becoming more readily restricted. If climate change drops yield, agriculture is affected first. It is paramount to ensure stakeholders know how and when they will get restricted. Everyone needs to know about the insurance and supply policy to avoid difficulties when restrictions occur."

> "You need to ensure water to a high concentration of people, but this can lead to agriculture becoming more readily restricted."
>
> LLOYD FISHER-JEFFES, ENGINEER AT ZUTARI

Following this, John Okedi, senior lecturer at the university of Cape Town, presented his research, arguing for the expansion of water production sources such as storm water harvesting. The lecturer argued that there was lots of existing infrastructure and facilities which could be used for storm water storage and harvesting to increase water yields. For instance, in the Zeekoe catchment area, out of 61 storm water ponds, 70% were largely dry through the year and were therefore available for storage for storm water harvesting.

Following their presentations, the panel then joined in a discussion on water demand and addressed questions from the audience. Key for both speakers was the importance of correct and clear communication between the industry and the public. Okedi noted that with the recent Cape Town experience a good example was set. Usually there is mass panic followed by attempts to build out of drought, but in this case comprehensible information was relayed to the public about the water systems' management. With good understanding, ineffective short-term projects can be avoided, water restrictive solutions are followed, and then more effective long-term solutions can be sought after.

The panellists concluded with the continuing progression of climate change, whereby droughts are likely to become more of a threat than ever before. It is therefore of upmost importance to learn the lessons of examples like Cape Town and implement a well-planned, well-maintained and effective water system; to make opportunities, such as with storm water harvesting to bolster water yields; and ensure there is clear communication with the system to ensure, if there is a need to implement restrictions, panic and ineffective coping solutions are avoided.

MANAGING COVID-19 AND OTHER PANDEMICS WITH EFFECTIVE WATER RESOURCES

Dr Eunice Ubomba-Jaswa, research manager at the Water Research Commission in South Africa, spoke at WISA 2020 about the key role the water sector can play in dealing with Covid-19 and future pandemics.

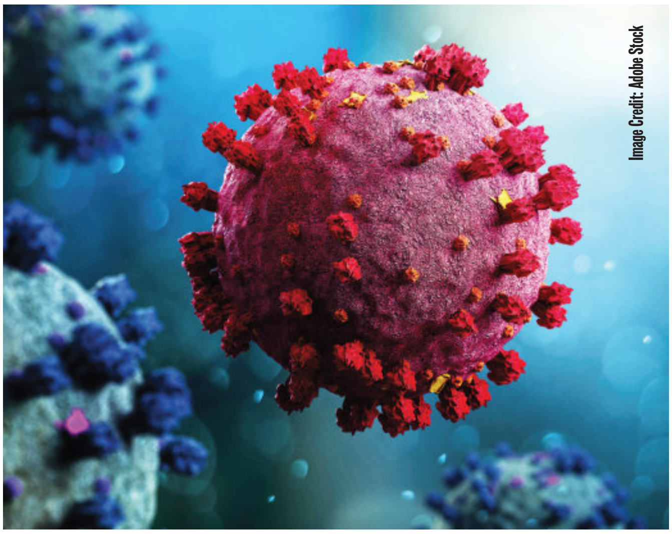
In her presentation, Covid-19 was described as a "threat multiplier" for existing pressures, drivers and threats to water resources, much like climate change.

She said strengthening water security was essential for preventing and combatting future pandemics.

As part of South Africa's immediate response to Covid-19, the Department of Water and Sanitation ensured water supplies were rolled out to the provinces so that everyone had access to a constant supply of water, especially in drought areas to prevent the excerbation of water insecurity, caused by the demand for handwashing.

"We can all agree governments around the world had to come together and face this issue. If your populace does not have supply to water and good quality water, how do they cope with a pandemic? It became a political priority.

"The most important thing during Covid-19 and possible future pandemics is water sanitation and hygiene. This is the first line of defence for future pandemics. We know washing your hands properly, maintaining good hygiene and sanitation is the best practice when there has been a risk of exposure to the virus."



When Covid-19 broke out in South Africa, the authorities made sure there were enough water supplies rolled out across the provinces.

Rebuilding

Ubomba-Jaswa also said that there had to be regulation of onsite sanitation options, which had to be safe, affordable and reliable.

"Infrastructures have already deteriorated so rebuilding has to occur, so it's important the services we provide in the value chain for water and sanitation are reliable."

She added water sensitive urban design (WSD) as a tool was central to managing the quality and quantity of water during a pandemic.

In Africa, in peri-urban densely populated informal settlements, there was no access to adequate water and sanitisation and social distancing was highly unlikely. In this case WSD could be used as a tool to help design new cities so overcrowding does not occur in the future and create 'liveable cities'.

She warned there might be future pandemics due to deforestation, climate change, and humans encroaching into animal areas.

Combatting water pollution

As part of WISA 2020, focus was shifted to water pollution and how remedying this requires a collaborative community effort.

Gladys Belle, student at the Central University of Technology, discussed her research on water pollution by presenting her PhD study investigating the contamination of surface water by gold mining. This industrial process produces gold mine tailings; a mixture of waste rock extracted together with gold ore which can contain potentially harmful elements (PHEs) such as lead, mercury and arsenic.

If these minerals get into water sources through rainfall, runoff and wind, they can cause damage to native aquatic life and humans that are exposed to it.

Taking the Matjhabeng mining area as a case study, Belle took surface water samples from 15 different sites around the area before testing them for 12 PHEs. Her data revealed that the surface water had consistently low levels of oxygen, higher levels of turbidity and a high concentration of arsenic, cobalt, iron and copper, all of which can be potentially dangerous to local wildlife and human health. This led Belle to conclude that mining activities in the Matjhabeng area are a major source of PHEs and call for the immediate remediation to mitigate levels of pollution in the area. It also serves as a stark warning of the damaging effects that industrial activities can have on local water sources.

On the same day, Ndomupei Masawi, senior environmental scientist at SRK Consulting, gave her presentation on the rehabilitation process of water resources, discussing how to remedy pollution if it does climb too high.

Boksburg Lake

Masawi used the Boksburg Lake, a popular attraction for visitors, local or further afield, that has been deteriorating for a number of years, as a case study. Direct sewage discharge into the lake has rendered the smell almost unbearable so that recreational use has been restricted, and based on a 2010-2016 survey silt build up is continuing so that it would take no more than 50 years for the lake to silt up completely. There are a number of options open to rehabilitate the site, such as the installation of aerators to oxygenate the lake, all with different financial obligations, but Masawi stated that all of these could only work with the combined contribution from all levels of the community.

Enforcement of bylaws, water quality monitoring, development of management plans are all critical steps to rehabilitate a water process which should be carried out by relevant local authorities, but Masawi noted that this would all be in vain if these were not complimented by awareness raising. Providing information to local businesses and inhabitants will ensure that they are more likely to comply with relevant bylaws and be capable of holding relevant authorities and water users to account.

Masawi concluded, "Water resource management requires all hands on deck. The rehabilitation of the Boksburg Lake requires collaboration at all levels including the community, with the relevant departments of the Ekurhuleni Metropolitan Municipality and the Department of Water and Sanitation acting as the guiding and enforcing authority."

GILKES INVESTS IN NEXT GENERATION MACHINING CAPABILITY

Image Credit: Gilkes

The addition of a five-axis machine tool strengthens Gilkes current in-house machining capability.

Gilkes' new machine and a runner being manufactured.

Gilbert Gilkes & Gordon, which delivers single source solutions to the small hydropower and high horsepower engine market, is delighted to showcase its latest investment in next-generation machining capability.

Hydropower turbine runners are traditionally cast and polished by hand: a laborious task taking hundreds of man hours. Recent years has seen Gilkes purchase these runners from specialist machine shops, adding high precision and repeatability, but at a significant cost.

The challenge set by Rebecca Sandham, Gilkes' head of operations, was to install the capacity to fully machine a hydropower turbine runner from a solid billet of material.

With an overall project investment of £1.3mn (US$1.7mn) approved by the board of Gilkes, Mazak installed and commissioned an INTEGREX E-1250V/8S 5-axis machine tool in early March 2020 with the project team wholly committed to delivering a fully machined Pelton runner to a hydro scheme by January 2021.

Partnering with Mazak, Brown & Holmes, Nikken, Iscar, SolidCAM and VERICUT the team encountered many challenges along the way, the greatest of these being to have the ability to completely machine the runner without the need to finish off hard to reach elements with sub-contract spark erosion.

With Mazak's innovative technology, Brown and Holmes workholding, Nikken and Iscar tooling skills and Gilkes' production engineering talent supported by SolidCAM and VERICUT, the team met this challenge with a solution that saves the need for sub-contract spark erosion reducing lead times and cost.

As well as onshoring a complex and high value component back to the UK, the project also moved the Gilkes team into new areas of expertise including 3D scanning, laser measurement, tool optimisation and real-time sensing. The addition of a five-axis machine tool strengthens Gilkes current in-house machining capability, significantly increasing productivity levels and enabling Gilkes to continue to be highly competitive in the global market.

Sandham said, "This new machining addition fully complements Gilkes' manufacturing strategy and helps nurture our engineering skills, capabilities and knowledge. The entire project team has worked tirelessly to deliver this project. Their enthusiasm, talent and determination has inspired many young engineers on our shop floor."

Gilbert Gilkes & Gordon is a privately owned, internationally established manufacturing business based in the UK, employing around 200 people. Specialists in hydropower and pumping systems since 1856, Gilkes now exports to more than 85 countries around the world. The company have supplied over 6,800 hydroelectric turbines worldwide, and supply engine cooling pumps to the world's top engine manufacturers, including Caterpillar, Cummins and GE Transportation.

Advertiser's Index

Customers demand greater digital engagement from Communication Service Providers (CSPs)

Communication service providers need to transform IT systems and their approach to customer experience, to meet the growing need of customers in Africa, writes George Fraser, VP: customer business executive-Africa at Amdocs.

The Covid-19 pandemic is accelerating the move to digital, as large proportions of the population have continued to work, learn and be entertained remotely, while others have trialled services such as remote health care for the first time. These were amongst the findings of a recent Amdocs survey of 1,000 US consumers.

The results draw many clear parallels with Africa's reality, with connectivity constraints providing a key exception.

Driven by digital giants, such as Apple, Amazon and Facebook, industries across Africa are racing to digitalise their operations. The objective is to match their customers' expectations for real-time, personalised and guided experiences in their channel of choice, as they have become accustomed to from these players.

For communications service providers looking to enable a simple, intelligence-driven and streamlined experience, many are starting with their current offerings and looking for ways to add value. Establishing partnerships and collaborating with players in adjacent industries provide the most obvious opportunities.

One of the most prominent US examples is Waze, Google's social GPS navigation app, which embedded Spotify and Apple Music to enable its users to play music in their car without leaving the original app. In the service bundling area,

African customers' expectations continue to increase as they demand the power to select the bundle, device and music of their choice – on demand and with one click. Digital catalogues with embedded features, as well as the ability to merge with third-party catalogues offer significant potential, allowing carriers to, for example, sell connectivity bundles, with Netflix on top and Amazon gaming miles added as a giveaway.

Image Credit: Amdocs

George Fraser.

> "Service providers in Africa must embark on transformation journeys."
>
> **GEORGE FRASER, VP: CUSTOMER BUSINESS , EXECUTIVE-AFRICA, AMDOCS**

A mindset change: prioritising digital

The ability to exceed consumers' expectations demands that service providers adopt a digital-first mindset; that is, promoting the adoption of unassisted channels where customers can easily self-serve, consume and manage their account autonomously. Moreover, the highly competitive African landscape makes speed and agility crucial, including the need to rapidly adapt and bring solutions to market to meet ever-changing consumer demands.

To enable these new experiences and support complex business operations, service providers worldwide and in Africa must embark on transformation journeys – centred on the cloud and the agility this brings – by implementing AI-driven operations focused on continuous improvement. This will allow them to stay one step ahead, with full automation.

A company that successfully transformed its customer experience is Indonesia-based mobile telecommunications services operator, XL. With a view to increasing its in-store conversion rate and empowering agents to deliver personalised services with targeted offers, a sales-on-tablet application was introduced, which offered a unique user design that allowed for guided agent experiences and significantly improved personalisation.

Agents felt empowered to approach customers with more confidence and could convert care issues into upsell opportunities more easily. In addition, the average handling time was reduced and the overall process of dealing with the customer, bills and related interactions simplified.

In the Philippines, telecommunications services provider Globe, also introduced a sales-via-tablet application, as well as an omni-channel solution that was initiated for its retail channel and expanded to incorporate its contact centre and self-service channels. This was aimed at simplifying the retail store experience, improving agent experience and helping to monetise the digital economy.

Globe's journey to digital resulted in a 60% improvement in average handling time – from 60 minutes to 25 minutes; a 90% satisfaction rate amongst store agents; the condensing of a complex re-contracting; an error rate reduction of around three to four times; and the quick launch of new bundles and offers.

By adopting similar approaches, communication service providers in Africa can improve engagement, build customer loyalty, promote the adoption of unassisted channels and ultimately, become customer experience leaders in the industry. ■


A LONG WAY
TOGETHER