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

African Review

JUNE 2021

of BUSINESS and TECHNOLOGY

P16

"The African continent is not weighed down by legacies that other parts of the world would struggle with."
Emmanuel Osanga, head of Africa Regions Data Office at Standard Bank Group

58 YEARS
SERVING BUSINESS IN AFRICA SINCE 1964

Cover picture: Benban Solar Park in Egypt.
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Printed by: Buxton Press

Printed in: MAY 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

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Editor's Note

Welcome to the June issue. Our cover story focuses on the solar projects and solutions, located on and off the grid across Africa, that are making a difference to the continent's energy mix, page 36.

Economist Moin Siddiqi explores how micro-, small- and medium-sized businesses are the answer to the economic recovery following the Covid-19 pandemic, through creating employment and combatting poverty, page 20.

Elsewhere in the issue, we look at what's new in the construction equipment and machinery industry, page 24. Over in the power section, we see how important it is to have an efficient service support and spares' supply chain to ensure power continuity for companies, page 38.

Finally, clean energy demand for critical minerals is set to soar to meet zero carbon goals, according to the latest report by the International Energy Agency. It warns that there is "a looming mismatch between the world's strengthened climate ambitions and the availability of critical minerals that are essential to realising those ambitions", and if action from governments is delayed could "hamper international efforts to tackle climate change", page 43.

Samantha Payne, *Editor*

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Renewables supplied a third of Africa's electricity growth throughout 2020, says think tank report

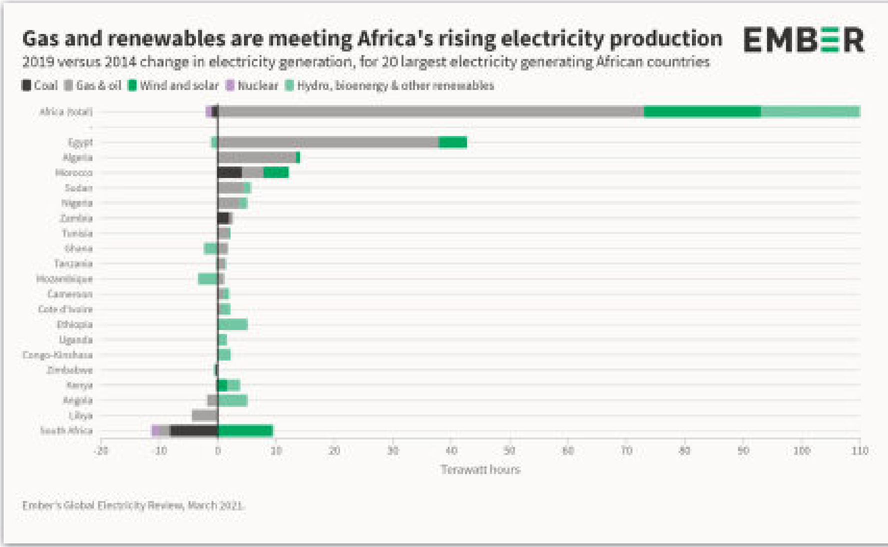

Image Credit: Ember

Think tank Ember has published an analysis of global electricity usage, which showcased resilient growth in solar and wind energy throughout 2020, meaning the two renewables alone powered almost 10% of the world's electricity. In Africa, more specifically, data from 2014 to 2019 showed that a third of the rise in Africa's electricity demand was met with renewable energy. Morocco and Kenya remain the continent's leaders in renewables, ahead of the world average.

The pandemic led to the first fall in electricity demand since 2009, with the incremental fall of 0.1% less of an impact than the financial crisis.

Wind and solar power continued global growth in spite of this demand fall, with a 15% rise year-on-year from 2019. This led to a record fall of 4% for coal power.

On the continent specifically, Morocco and Kenya generated 16% and 15% of their electricity respectively from wind and solar in 2019. These figures reflect Morocco's rapid increase in solar capacity, increasing from near-zero in 2015 to accounting for 4% of its electricity in 2019. Kenya has seen rapid acceleration in wind capacity, from 1% in 2015 to 14% in 2019. Solar fuels less than 1% of Kenya's electricity demand.

In 2019, Nigeria and Algeria generated more than 1% of their electricity from wind and solar, Egypt increased to 3% in 2019 after a number of recent solar projects contributed to its demand. South Africa generated 6% of its electricity from wind and solar in 2020, tripling the 2015 figure, but still remaining below the global average of 9.4%.

Fossil fuels still contributed 61% of the world's power in 2020, down from 66% in 2015, when the Paris agreement was signed. Coal contributed to 34% of the global figure.

Peter Tunbridge, an analyst at Ember, said, "The challenge remains to build renewables fast enough to keep up with rising electricity demand, not just for Africa, but across the world. Emerging economies, such as India and Turkey are accelerating their deployment of wind and solar beyond the increase in electricity demand, to actually reduce their dependence on fossil fuels. Wind and solar have the potential to power Africa's electric future, and rapid deployment of these technologies will be essential for African countries to meet their rising demand for electricity, whilst avoiding a fossil gas trap."

BOSCH REXROTH EGYPT OPENS FOR BUSINESS IN CAIRO

Responding to a national demand for high-quality pneumatic, hydraulic and automation solutions across Egypt, Bosch Rexroth Egypt has opened for business in the nation's capital, Cairo.

The premises will offer the full range of Bosch Rexroth products, with a number of complementary offerings, services and solutions to shorten the turnaround from order to delivery.

Abderrahim Ait-Yacine, general manager at Bosch Rexroth Egypt, explained, "As a strong regional and continental economy, Egypt offers attractive potential for new markets, in close co-operation with our local professional partner network."

Bosch Rexroth supplies products to a number of Egyptian industries, including power generation, oil & gas, metallurgy, cement, heavy machinery and construction."

Alongside Bosch Rexroth Egypt's established network of professional industry partners, the local team at the premises will serve the automation products, solutions and service needs of both end-user market and local distributors.

"We see a lot of potential for our planned activities across multiple Egyptian industries," added Ait-Yacine.

Tillmann Olsen, regional president, Africa, Bosch Rexroth AG, explained, "Despite Covid-19, we were able to recruit and set up the ERP system in a short time. This allowed us to win the first order in a very short time, which has been successfully delivered."

BRIEFS

Image Credit: Adobe Stock

Energy investment in the MENA region saw a US$13bn growth year-on-year.

MENA power financing to rise

APICORP's latest MENA energy investment outlook reflected a US$13bn rise in committed and planned energy investment year-on-year, with renewables claiming a significant share of almost 40% of the US$250bn in power sector investments.

Estimating in its 'MENA Energy Investment Outlook 2021-2025', APICORP predicts an excess of US$805bn over the next five years- a US$13bn increase from last year's five-year estimate.

Image Credit: Adobe Stock

MENA contributes to 2% of the worldwide data centre market.

MENA data centre market to grow

The data centre market across Middle East and North Africa (MENA) is anticipated to grow at a CAGR of around 8% between 2020 and 2026, based on a market report from Aritzon.

Accounting for 2% of global data centre investments, the MENA data centre market has experienced growth thanks to the Covid-19 pandemic, increased digitalisation, 5G expansion, cloud and hybrid infrastructure services, and government initiatives.

FAW Trucks celebrates milestone of 7,000 assembled vehicles in Coega, South Africa


Image Credit: FAW Trucks

The Coega facility has a production capacity of 3,000 units per annum.

FAW Trucks ended the month of April on a high note when the 7,000th locally assembled vehicle rolled out of its Coega manufacturing plant. This marked another significant milestone for the Chinese brand that took the top spot in the Heavy Commercial Vehicle (HCV) segment of the local market for the first time in the first quarter of this year.

The unit in question was a JH6 28.500FT model, which has since been delivered to a well-established strategic fleet customer.

Jianyu Hao, CEO of FAW South Africa, said, "This is an understandably proud moment for us. It reaffirms our commitment to the local market and is a just reward for what is one of the largest investments made by a Chinese entity in this country.

"Since first entering the South African market 27 years ago, we have gone from strength to strength, providing local buyers with products of high quality that are not only well suited to local conditions, but also boast high levels of safety, convenience and comfort. We have managed to combine this with competitive pricing, low running costs and excellent aftersales service."

Funded by the China FAW Group Corporation and the China-Africa Development Fund, the first vehicle rolled off the Coega assembly line in July 2014. All units arrive in South Africa in semi knocked-down form and are then assembled at Coega.

Currently, the Coega facility has a production capacity of 3,000 units per annum, but this is scalable to 5,000 to be able to meet the growing demand for FAW Trucks models.

"The reason for our continued growth in South Africa is the fact that we cater to virtually every need within the highly competitive commercial vehicle market," explained Hao. In addition, all models are assembled to exacting standards to be able to withstand the harsh conditions of the African continent.

"All current models in the local FAW Trucks range represent the strength, reliability, affordability and ease of operation that the brand and its products are renowned for. Most importantly, though, each model delivers on the promise of a 'truck built in South Africa for Africa'," Hao concluded.

TELONE ZIMBABWE SELECTS TEJAS PLATFORM FOR NETWORK CAPACITY EXPANSION

Tejas Networks has announced that TelOne, one of Zimbabwe's telecom entities, has deployed Tejas' 100G/100G+ coherent DWDM solution. TelOne has the widest network coverage in Zimbabwe with connectivity across the country, anchored on its robust backbone infrastructure.

Chipo Mtasa, managing director at TelOne, said, "TelOne offers access to a vast network footprint in Zimbabwe. With the rising demand for bandwidth and higher speeds from our customers, we were looking for a versatile solution that could significantly expand the capacity of our existing fibre network with incremental investments. We were impressed by the capabilities of the Tejas' solution and its ability to seamlessly carry 100G services with no interoperability issues. Tejas products have very versatile software, are simple to configure and easy to operate. We appreciate the support of a highly responsive Tejas team, that was able to design and deliver an end-to-end network solution in the shortest period."

SANDVIK TO ACQUIRE KWATANI SCREEN SUPPLIER

Sandvik has signed a deal to acquire the South African based company Kwatani, a leading supplier of screens and feeders for the mining industry. The product offering includes screens, feeders, fine separators, drives and services. The company will be reported in Stationary Crushing and Screening, a division in Sandvik Rock Processing Solutions.

"I am pleased that we are continuing to execute on our strategy to grow through acquisitions and at the same time strengthening our position in rock processing. I look forward to welcoming Kwatani to our group," said Stefan Widing, president and CEO of Sandvik.

The acquisition of Kwatani, which is the first since the Sandvik Rock Processing Solutions business area was established at the beginning of 2021, will expand Sandvik's equipment range and complement the existing aftermarket product and services portfolio. Kwatani's strong offering in large multi slope screens for the mining industry will add to Sandvik's existing portfolio while also strengthening the group's position in Africa.

"Kwatani's offering of large vibrating screens and feeders for the mining industry is in line with our strategy to strengthen our capabilities in comminution and will be a good complement to Sandvik's strong competence and experience within stationary crushing and screening. This will further accelerate our growth within rock processing," said Anders Svensson, the president of Sandvik Rock Processing Solutions.

Kwatani has its headquarters in Johannesburg, and has around 150 employees.

The transaction is expected to close during the fourth quarter of 2021 and is subject to relevant regulatory approvals.

BRIEFS

Barko selects Temenos' banking solution


Image Credit: Adobe Stock

BFS is set to focus on its core business and devote capital and resources to better banking solutions.

Barko Financial Services (BFS), a microfinance institution in South Africa, has gone live on Temenos software-as-a-service to make it faster and easier for South Africans to access finance remotely during Covid-19. The Temenos solution combines Temenos Infinity digital banking platform and Temenos Transact next-generation core banking services. BFS can now originate loans for customers via a mobile, without them ever having to visit the branch.

Metal Tiger commences drilling in Botswana


Image Credit: Adobe Stock

The programme targets structurally controlled trap-sites for prospective copper/silver deposits.

Metal Tiger said that drilling has now commenced on the Kitlanya East (KIT-E) project area in Botswana, following the successful mobilisation of the reverse circulation and diamond core drilling rigs to the site.

The drilling programme targets structurally controlled trap-sites for prospective copper and silver deposits, identified by airborne electromagnetics and magnetic geophysics, soil sampling and stratigraphic drilling.

SA's largest renewable plant begins construction

ACWA Power, a leading Saudi developer, investor and operator of power generation and water desalination plants in 13 countries and the lead shareholder in the Redstone concentrated solar power (CSP) plant, has commenced the construction of the 100MW Redstone project following the achievement of financial close. At US$824mn total investment, the Redstone project is the largest renewable energy investment in South Africa to date.

Image Credit: Adobe Stock

The project will achieve almost 44% local content on procurement during the construction period.

The project has secured financing from leading international and South African financial institutions including African Development Bank (AfDB), ABSA Bank, Development Bank of Southern Africa (DBSA), CDC Group, Nedbank Limited, Nederlandse Financierings-Maatschappij voor Ontwikkelingslanden (FMO), Deutsche Investitions- und Entwicklungsgesellschaft (DEG), Investec Bank and Sanlam Life Insurance.

Located in the Northern Cape Province of South Africa, the Redstone plant will be equipped with a 12-hour thermal storage system that will deliver clean and reliable electricity to nearly 200,000 households round the clock. Commencement of operations is scheduled for Q4 2023.

Commenting on the occasion, Paddy Padmanathan, president and CEO of ACWA Power, said, "Redstone CSP adds another superlative to our budding record in South Africa, being the largest renewable energy investment to date. As grid links are improved, the ingenuity of the private sector together with the great support of experienced finance partners has the potential to spark lasting impact for local communities and address the threats of climate change."

Redstone CSP will displace an estimated 440 metric tonnes of CO_2 emissions per year. The project is certified under the Climate Bonds Standard and Certification Scheme and aligned with the goals of the Paris Climate Agreement which seeks to limit global warming to under 2°C.

In addition to efficiently delivering clean energy to the national grid, the Redstone project will also offer tangible socioeconomic value through offering job opportunities and utilising local supply chains. The project will reach close to 44% local content on procurement during the construction period; create more than 2,000 construction jobs at peak, with about 400 from the local community; and create approximately 100 permanent direct jobs during the operating period.

FEASIBILITY STUDY FOR WIND AND BATTERY ENERGY STORAGE PROJECT IN MOZAMBIQUE

POWER Engineers Inc was chosen to work with Delphos International on the feasibility study for a 30MW wind power and battery storage project in Mozambique. The funding for the overall project was provided by the US Trade and Development Agency (USTDA).

When constructed, this wind farm will provide electricity to thousands of people and will be one of the only utility-scale wind power plants in the country. A key component to the feasibility study is battery energy storage, showing its viability as an aspect of Mozambique's power grid and the ways that it could be used in future projects. POWER's team will be conducting a wind resource assessment, energy storage technology and commercial review, and an electrical interconnection study. POWER will also provide a conceptual design, cost estimate, power plant preliminary site design, and owner's engineer support for the finalisation of project agreements.

SASOL SELLS 30% MOZAMBIQUE GAS PIPE STAKE TO REATILE-AIIM

Sasol South Africa (Sasol) has agreed to sell a 30% interest in the Republic of Mozambique Pipeline Investments Company (ROMPCO) to the Reatile-AIIM Consortium, an acquisition vehicle made up of Reatile Group (Reatile), a leading black-owned investor in the energy landscape, and African Infrastructure Investment Managers (AIIM), one of Africa's largest infrastructure-focused private equity fund managers and a member of Old Mutual Alternative Investments.

The Reatile-AIIM Consortium will, subject to the fulfilment of a number of conditions precedent, acquire a 30% interest in ROMPCO for a consideration comprising, subject to certain adjustments, an initial amount of US$786mn and a deferred payment of up to US$70mn, payable if certain agreed milestones are achieved by 30 June, 2024.

Sasol will retain a 20% shareholding in ROMPCO and will continue to operate and maintain the pipeline in terms of the pre-existing commercial agreement between another member of the Sasol group and ROMPCO.

Simphiwe Mehlomakulu, chairman of Reatile, said, "This is a landmark transaction that broadens participation in the South African energy sector and highlights Reatile's leading role in it. We are excited by the economic potential of increased gas supply to the region and stand ready to support ROMPCO's long-term expansion potential. We look forward to developing the South African energy sector in partnership with Sasol, iGas and CMG."

ROMPCO operates the 865km gas pipeline connecting the Pande and Temane gas fields in Mozambique with South Africa. The pipeline supplies gas to five offtake points in Mozambique and is the primary supply channel for natural gas into South Africa.

BRIEFS

Strengthening Zimbabwe's payment sector

Image Credit: Adobe Stock

With this initiative, Visa aims to expand the payments landscape across Africa.

ZimSwitch has partnered with Visa with an aim to accelerate remittance services. According to ZimSwitch, the partnership is set to enable clients to make domestic and international transactions with one co-branded card, an initiative that is set to increase convenience while decreasing costs. The EMV-enabled cards will ensure that all transactions are safe. It will function across payment methods including e-commerce, mobile payments, QR Code transactions and tokenisation.

Angola Cables boosts capacity with Ciena

Image Credit: Adobe Stock

Angola Cables increases MONET submarine cable capacity via Ciena.

Angola Cables has upgraded its MONET submarine cable network using Ciena's GeoMesh, powered by WaveLogic A optical technology, to provide more capacity and lower latency to satisfy surging digital demands. Angola Cables has an extensive network connecting North America, South America, Africa, and Europe through its MONET submarine cable network, South Atlantic Cable System (SACS), and West Africa Cable System (WACS).

Siemens Energy to supply F-class gas turbine to Côte d'Ivoire power plant

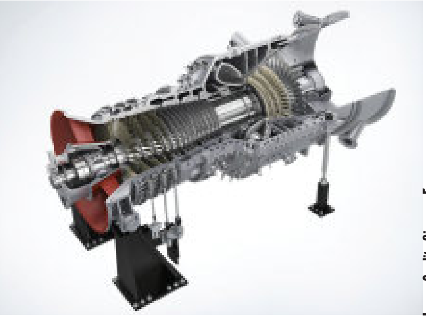

Image Credit: Siemens Energy

The SGT5-4000F will be first F-class gas turbine in sub-Saharan Africa.

Siemens Energy has signed an agreement with TSK, a Spanish EPC contractor, to provide the company's energy technology and services to Atinkou (formerly known as Ciprel V), a new combined cycle power plant to be built in Jacqueville, Côte d'Ivoire. Owned by ATINKOU S.A., a subsidiary of Eranove, the power plant, is scheduled to begin operations in late 2022, will have an installed capacity of 390MW in combined cycle and introduces the first F-class gas turbine in sub-Saharan Africa.

Siemens Energy's scope of supply includes one SGT5-4000F gas turbine and one SST5-3000 steam turbine, each along with a generator, condenser and an SPPA-T3000 control system. Additionally, a comprehensive 12-year long-term service agreement has been signed between the end customer ATINKOU S.A. and Siemens Energy.

"Siemens Energy is proud to be supplying the very first, highly efficient F-class gas turbine to the sub-Saharan region, thereby continuing our commitment to improve access to reliable and affordable energy in West Africa," said Karim Amin, executive vice president of Siemens Energy's generation division. "Supported by our state-of-the-art technology and services, this power plant will be the most efficient natural gas fired power plant in Côte d'Ivoire and in the region. It will help to reduce the area's carbon footprint from power generation and support Côte d'Ivoire in its efforts to become a regional energy hub."

"Since the signing of the concession with Ivorian authorities in December 2018, the pan-African industrial group Eranove – in charge of the design, financing, construction, operation and maintenance of this plant, carried by the company ATINKOU – is very proud to bring together partners like Siemens Energy and TSK. The Atinkou power plant will produce electricity for thousands of homes and industries to meet national and regional electricity needs generated by strong economic growth," said Marc Albérola, CEO of Eranove.

The SGT5-4000F gas turbine provides high performance, low power generation costs, long intervals between inspections and a service-friendly design.

AUDA-NEPAD AND ECOBANK GROUP TO FINANCE '100,000 MSMES INITIATIVE'

The African Union Development Agency NEPAD (AUDA-NEPAD) and the Ecobank Group, its strategic partner on the development of the '100,000 Micro, Small and Medium Enterprises (MSMEs) initiative', are set to launch the financing component from 27 May, 2021.

The MSMEs Programme was launched to accelerate African economic transformation and build resilience against the economic shock caused by the pandemic. The '100 000 MSMEs' initiative seeks to build the capacity of 100,000 enterprises through business training to improve access to finance and markets while establishing networks for support to bolster their success. "MSMEs are the biggest engine of economic development. AUDA-NEPAD is convinced transformation will be driven by youth and women led businesses," said Amine Idriss Adoum, AUDA-NEPAD, director of programme delivery.

GROWTH FOR NIGERIA'S CONSTRUCTION INDUSTRY IN 2021

Nigeria's construction industry is expected to recover in 2021, with an expected real growth rate of 3.9%, driven by a sharp recovery in output levels compared to periods when works were not permitted or were severely restricted in 2020, according to data and analytics company, GlobalData.

GlobalData's report, 'Construction in Nigeria – Key trends and opportunities to 2025-(Q2-2021)', reveals that the country's construction industry is expected to post an annual average growth rate of 3.2% in real terms between 2022-2025, supported by the government's plan to invest in the country's infrastructure and energy sector. The 2021 Appropriation Bill, presented by President Muhammadu Buhari to the National Assembly, is designed to achieve the goals of the Economic Sustainability Plan, which provides a road map for post-Covid-19 economic recovery to transition from the Economic Recovery and Growth Plan (2017–2020) to the successor Medium-Term National Development Plan (2021–2025).

Dhananjay Sharma, analyst at GlobalData, said, "The expected passage of the long-pending Petroleum Industry Bill (PIB) may provide a much-needed impetus to Nigeria's oil and gas sector, thereby creating multiplier effects across the entire construction chain and Nigerian economy. The government's decision to reduce deep water royalties and other taxes to 5% from the earlier 7.5%, and increasing production levels to 50,000 bpd from the earlier 15,000 bpd, offer optimism regarding the government's intentions to pass the bill.

"The focus on PIB augurs well for the Nigerian economy and the construction sector, given delays in implementing legislative reforms that have compounded problems for the sector, which is suffering under the weight of OPEC+ output cuts and the impact of Covid-19," added Sharma.

BRIEFS

Orange accelerates solar projects in MEA

Image Credit: Adobe Stock

Orange is deploying solar solutions and the latest generation batteries.

Orange has accelerated its solar projects in Africa and the Middle East to reduce its carbon footprint to zero by 2040. To avoid using generators that run on fuel, Orange is leading several initiatives, such as solar panels. In several of its subsidiaries, Orange is deploying solar solutions and the latest generation batteries with energy partners. Orange is proud to be the top company by number of solar panels in five countries in Africa and the Middle East, said the region's CEO Alioune Ndiaye.

Ghana's Pokuase Interchange Project to be completed in June

Image Credit: Adobe Stock

Ghana's Pokuase project due for completion in June.

The 4-Tier Pokuase Interchange Project in Ga North municipal district, Ghana, the first of its kind in West Africa, is scheduled for completion by June, according to media reports.

Executed under the Accra Urban Transport Project and supervised by the Ministry of Roads and Highways, the Awoshie-Pokuase interchange project is aimed at removing the traffic jam at the Pokuase ACP junction.

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
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Ethiopian Airlines claims Gold Award for Cargo Volume

Logistics of Guangdong Airport Authority has named Ethiopian Airlines Group, Africa's largest airline, as the Gold Award winner of International Airlines Cargo Volume during the 2021 Logistics of Guangdong Airport Authority Client Seminar, held in Guangzhou, China.

Ethiopian Airlines received the award for the volume of cargo transported to and from Guangdong Airport in 2020.

Ethiopian Airlines CEO, Tewolde GebreMariam, said, "We are grateful to Logistics of Guangdong Airport Authority for honouring us with this special award in recognition of our efforts. China is one of the top cargo origins and Guangzhou Baiyun International Airport is among the main international aviation hubs in the Greater Bay Area. We have worked very hard to provide efficient cargo service between China and the rest of the world during the Covid-19 pandemic. The award is a recognition of this effort and it will inspire us to enhance our services to the greater bay area to meet the growing customer demand for airfreight."

Image Credit: Ethiopian Airlines

Ethiopian Airlines won the Gold Award for International Airlines Cargo Volume.

Across 2020, Ethiopian Airlines demonstrated an impressive performance at Guangzhou Baiyun International Airport by operating 1622 flights out of which 966 were with freighter, 572 were with Preighter (passenger aircraft converted to cargo), and 84 flights were with belly hold on passenger aircraft.

In 2020, Ethiopian Airlines became the leading airline in terms of cargo transported in and out of the port by carrying a total cargo weight of 54.4 million kilograms and will increase its frequency to Guangzhou Baiyun International Airport to 14 freighters and 21 preighters per week soon.

Since the outbreak of the Covid-19 pandemic, Ethiopian Airlines strategically shifted its business focus to cargo transportation and aircraft maintenance businesses. Through its agility and active implementation of 'passenger-to-cargo' conversion, the company efficiently transported vaccines, personal protective equipment and other medical supplies across the globe. So far, Ethiopian Airlines has transported more than 20 million doses of vaccine to more than 20 countries.

DJIBOUTI NAMED TOP PORT IN AFRICA

Djibouti has been recognised as the top container port in Africa and 61st globally by the World Bank and IHS Markit's latest global Container Port Performance Index.

According to the index, Djibouti and Mombasa ports are the most technically efficient in Eastern and Southern Africa, based on three main variables: the sum of the length of all container and multipurpose berths in the port, the total container terminal area of the port, and the combined capacity of the cranes.

Djibouti's container terminal, Société de Gestion du Terminal à conteneurs de Doraleh (SGTD), is a key transhipment hub for the East African region, fully connected to the Addis Ababa-Djibouti railway with five trains a day stopping at the port and has a throughput capacity of 1.6 million TEU.

Djibouti's US$15bn investment plan to develop its ports and infrastructure has led to the country making consistent improvements in global rankings on ports and logistics performance.

STARSIGHT ANNOUNCES EAST AFRICAN EXPANSION

Starsight Energy, an African Commercial and Industrial (C&I) energy provider, has announced its expansion into East Africa via the acquisition of a 50% stake in the East African operations of Premier Solar Group, a C&I solar company with a focus on sub-Saharan Africa and South Asia.

The transaction will see the creation of Starsight Premier Energy Group which will offer sustainable power and cooling-as-a-service and battery storage solutions to C&I clients in Kenya, Uganda, Tanzania, and Rwanda.

Premier Solar Solutions, the Kenyan subsidiary of Premier Solar Group, is already a leading player in the Kenyan C&I solar sector with five delivered projects totalling 2.7MW, eight projects totalling 8.8MW currently in execution, and a pipeline of a further 20MW in Kenya. Furthermore, expansion into Uganda, Tanzania, and Rwanda is planned for 2021 and 2022.

Tony Carr, CEO of Starsight Energy, commented, "We are excited to be partnering with Premier Solar Group in East Africa. The newly formed company will deliver significant financial capacity to the region's energy efficiency market and offer new and existing clients an unprecedented opportunity to scale their sustainable power, cooling, and storage systems. Starsight Premier Energy Group will combine Starsight's industry-leading service and technology with Premier Solar Group's established footprint in Kenya. We look forward to bringing our unparalleled service and 99.9% uptime guarantee to new C&I clients in the region."

Rupesh Hindocha, founder and CEO of Premier Solar Group, has been appointed chairman and CEO of Starsight Premier Energy Group. Rajat Surey, head of projects and technical at Premier Solar Group, has been appointed CTO.

BRIEFS

Lamu Port completes first berth


Image Credit: Kenya Ports Authority

The port is one of the flagship projects of Kenya's Vision 2030.

The Lamu seaport in Kenya is now able to receive its first ship after China Communication Construction Company completed the construction of berth one, according to Xinhaunet. Work on this project began in 2015, with berths two and three expected to be completed in October. These will be the first of the 23 berths that the port will boast and, once fully operational, its capacity is expected to handle 23.9 million tons of cargo traffic by 2030.

Work begins for fertiliser plant in Kenya


Image Credit: Adobee Stock

The goal is to start commercial operation of the plant in 2025.

MET Development, Stamicarbon and NextChem, subsidiaries of Mair Tecnimont S.p.A., have started work on a renewable power-to-fertiliser plant at the Oserian Two lakes Industrial Park.
The plant will support Kenya's low carbon growth, its agricultural output and its smallholder farmers and communities. It is projected to produce 550 metric tons per day of Calcium Ammonium Nitrate and/or NPK fertilisers (fertilisers based on Nitrogen, Phosphorous and Potassium).

EAS3 to enhance connectivity between East Africa and Asia

The new East Africa Service 3 (EAS3) will offer direct weekly sailings between China, South-East Asia, Kenya and Tanzania with very competitive transit times, enabling customers to enjoy even better connectivity between Asia and East Africa. In addition, the EAS3 will offer excellent connections to Hapag-Lloyd's global network via the hub ports of Singapore, Port Kelang and Shanghai. Seven 2,800 TEU vessels will be deployed in the service, including two provided by Hapag-Lloyd.

Image Credit: Hapag-Lloyd

The port rotation route of the EAS3.

"Hapag-Lloyd has been steadily expanding its business in East Africa in recent years as part of our strategic focus on selected growth markets worldwide," commented Dheeraj Bhatia, senior managing director of region Middle East at Hapag-Lloyd. "Our new EAS3 service will create a new option for our customers and help us to forge even stronger connections between this flourishing region and the rest of the world."

The first westbound voyage of the EAS3 started in Shanghai on 29 April, 2021 with an estimated arrival in Mombasa on 23 May 2021. Further vessel and schedule details will be announced as soon as possible. The port rotation is as follows: Shanghai-Ningbo-Nansha-Singapore-Port Kelang-Mombasa-Dar Es Salaam-Port Kelang-Singapore-Shanghai.

Hapag-Lloyd entered the sub-Sahara African market about 13 years ago and has seen steady and significant growth in transported volumes to and from Africa since then. In East Africa, the China Kenya Express Service (CKX) connects Kenya with some of the most important ports in Asia, such as Singapore and Shanghai, while the East Africa Service 2 (EAS2) connects the East African country with the west coast of India and Jebel Ali in Dubai.

In March 2021, Hapag-Lloyd also opened its own new office in Kenya to better serve and be closer to its customers in this thriving economic hub of East Africa. While the main business will be managed from the port city of Mombasa, the company will also have an office in Nairobi, the country's capital.

Hapag-Lloyd now has five offices on the continent in South Africa, Egypt, Ghana, Nigeria and Kenya. In addition, it recently opened a Quality Service Center in Mauritius.

DP WORLD LAUNCHES E-COMMERCE PLATFORM

Trade enabler DP World is set to launch DUBUY.com, a global wholesale e-commerce platform, in Ethiopia following the signing of a MoU between DP World and the Ethiopian Ministry of Transport.

DUBUY.com is an online marketplace that will help to unlock access to global markets for small and medium-sized Ethiopian enterprises and enable global companies to find and serve new trading partners in Africa, opening access to fast growing markets on the continent.

Mahmood Al Bastaki, chief operating officer of Dubai Trade World, said, "DUBUY.com represents a new model of trade in Africa, designed to strengthen its existing potential and open businesses and markets organically by enabling trade and supplying innovation. This technology allows home grown businesses to become international manufacturers and exporters by linking them with new markets in Africa and the rest of the world."

EAST AFRICAN COMMUNITY & GERMANY SIGN US$65MN FINANCE AGREEMENTS

The East African Community (EAC) and the Federal Republic of Germany have signed two agreements worth US$65mn paving the way for the implementation of projects in the areas of health, digital skills and water resources management.

The agreements were signed by Peter Mathuki, EAC secretary general, and Regine Hess, ambassador of the Federal Republic of Germany to the United Republic of Tanzanian and the EAC.

In the health sector, the Regional Centre of Excellence for Vaccines, Immunisation & Health Supply Chain Management, located at the University of Rwanda in Kigali, will receive US$17mn to allow the centre to expand its expertise and reputation, especially in the areas of digitalisation in health supply chain management, cold-chain management and quality control. US$30mn will be released for the EAC's immunisation programme with Gavi, the Vaccine Alliance that will contribute to reducing child morbidity and mortality in the region.

The Integrated Water Resource Management Programme will be stocked up US$12mn to finance additional measures to improve water quality and availability through strategic and sustainable management of the Lake Victoria Basin.

In order to strengthen digital skills and innovation in East Africa, the secretariat and Germany further agreed on the implementation of the project "Digital Skills for an Innovative East African Industry" that builds on the results of the project "Centre of Excellence for ICT in East Africa". US$6mn will be allocated to the new phase that aims to strengthen digital skills of especially young women and men from all six EAC Partner States to strengthen their employability and innovation capacities.

BRIEFS

Telkom to form two subsidiaries

In August 2020 Telkom re-organised its structure into Telkom Consumer and Telkom Digital in order to better address the digital transformation.


Image Credit: Adobe Stock

Telkom's objective is to become the technology partner of choice.

Moving into the next phase of this transition, in order to enhance its delivery service, the company is creating two wholly owned subsidiaries to house its digital and financial services businesses. The Consumer Service Delivery Unit will remain within Telkom and the company also assured that there would be no loss of jobs as a result of the exercise.

Phase 4 drilling programme to begin at Makuutu

The Board of Ionic Rare Earths Limited has outlined the proposed next phase of drilling at its 51% owned Makuutu Rare Earths Project in Uganda to increase the Indicated Resource and convert RL 1693 Exploration Targets to classified resources.

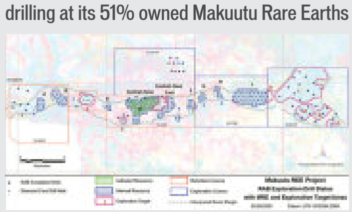


Image Credit: Ionic Rare Earths

The Makuutu Mineral Resource Estimate areas.

Drilling is planned to commence shortly, with the first rig secured. A second rig is being organised to arrive shortly in order to expedite the initial allocation of infill drilling.

Upcoming Events Calendar 2021

JUNE

8-10

ENLIT AFRICA
Virtual
www.enlit-africa.com

22-24

SEFEA
Virtual
https://sefea2021.get-invest-matchmaking.eu/

AUGUST

24-25

POWER & ELECTRICITY WORLD AFRICA
Virtual
www.terrapinn.com/exhibition/power-electricity-world-africa/index.stm

23-27

IEEE POWERAFRICA 2021
Virtual
https://ieee-powerafrica.org/

SEPTEMBER

7-8

2ND ANNUAL AFRICA SOLAR ENERGY FORUM
Virtual
https://leadventgrp.com/events/2nd-annual-africa-solar-energy-forum/details

14-16

PROPAK WEST AFRICA
Lagos, Nigeria
www.propakwestafrica.com

14-16

AFRICA ENERGY FORUM
Barcelona, Spain
www.africa-energy-forum.com

21-23

NIGERIA ENERGY
Lagos, Nigeria
www.nigeria-energy.com/en/home.html

OCTOBER

7-9

THE 9TH POWER & ENERGY AFRICA 2021
Nairobi, Kenya
www.expogr.com/kenyaenergy

NOVEMBER

2-4

IFAT AFRICA
Johannesburg, South Africa
www.ifat-africa.com

3-5

THE BIG 5 CONSTRUCT KENYA
Nairobi, Kenya
www.thebig5constructkenya.com

Mining Indaba expands the Advisory Board for 2022

Investing in African Mining Indaba (Mining Indaba), organised by Hyve Group Plc has announced the newly expanded Advisory Board. The strategic committee includes distinguished finance, technology, sustainability, mining operations, policy, and governance leaders whose focus will be to shape and guide the priorities of the conference.

"Designed to reflect the true voice of the industry in shaping the purpose and agenda, this is an important milestone for Mining Indaba," said Tom Quinn, head of content, Mining Indaba. "We carefully curated this board to include industry experts whose collective experience ensures the conference has the guidance it needs to navigate its way in the mining industry."

With combined years of expertise spanning the sector, the Advisory Board will play a valuable role in guiding strategic decisions to help strengthen Mining Indaba's commitment to the sector. Whilst, linking leaders in the pan-African mining sector to identify the goals and ambitions of governments, investors, and businesses in Africa's mining sector for Mining Indaba to continue being the event created by the industry for the industry. The board of CEOs and leaders will bring prestige to Mining Indaba, and is projected to meet on a formal basis, building on the existing relationships, through yearly meetings in South Africa, alongside weekly conference calls.

Joining the newly established board includes the **Executive Committee:** Mpho Makwana, co-chair, Investing in African Mining Indaba, Tom Quin, head of content and co-chair, Investing in African Mining Indaba; **International and South Africa Committee:** Frans Baleni, former general secretary, National Union of Mineworkers, Noluthando Gosa, founder/ non-executive director, Akhona Group/Investec Asset Management, Tony Carroll, international advisor, Investing in African Mining Indaba; **CEO and Leadership Committee:** Roger Baxter, CEO, Minerals Council South Africa, Errol Smart, CEO, Orion Minerals, Deshnee Naidoo, director of finance and business development – Base Metals, Vale, Dr Nombasa Tsengwa, CEO-Designate and MD – Minerals, Exxaro Resources, Fortune Mojapelo, CEO, Bushveld Minerals, Rohitesh Dhawan, president and CEO, ICMM; **Finance and Investment Committee:** John Startin, Senior MD, Evercore, Jerry Agyeman-Boateng, executive director and head – Global Subsidiaries, Standard Chartered Bank, Colin Hamilton, MD Capital Markets, BMO, Nivaash Singh, co-head: Mining and Resources, Nedbank CIB, James Wellsted, senior vice president – Investor Relations, Sibanye-Stillwater.

Image Credit: Mining Indaba

A newly-expanded Advisory Board has been announced by Mining Indaba.

For more information, visit https://miningindaba.com/Page/advisory-board


MOTEURS
Baudouin
A WEICHAI COMPANY

"The Kom Ombo solar project is a truly remarkable transaction. It not only clearly demonstrates the indisputable competitiveness of solar PV vis-à-vis conventional sources of generation, but it also contributes directly to the realisation of Egypt's ambitious renewable energy targets, in addition to being an excellent example of what stakeholders driven by a shared objective can achieve."

Image Credit: AfDB

KEVIN KARIUKI

Vice president of power, energy, climate change and green growth at AfDB

"When we established 3t EnerMech, our core objective for the alliance was to work closely with regional clients to develop and upskill their local personnel. Being able to deliver this just a few months later in Angola is a key milestone for the business and testament to the dedication and proactivity of our combined forces."

ROSS MCHARDY

Regional director of Europe and Africa for EnerMech, a provider of mechanical services and solutions to the international energy services sector

"As an authentically African bank with a deep understanding of the continent, we help clients build fit-for-purpose solutions that drive growth. As such, we are delighted to be collaborating with Invest Africa. An association with such a well-established organisation is a significant part of our commitment to act as a corridor to the continent and support international companies who are, or are interested in, conducting business in Africa."

CHERYL BUSS

Chief executive of Absa International, on the strategic alliance between Invest Africa and Absa International to support the development of investment on the continent

"African challenges, more than anywhere else, require us all to go seek coordinated responses and actions. Because in Africa, we need to leave no one behind. Let's Finance in Common and build now a common and positive story of innovation and investment in Africa, leveraging Official Development Assistance and mobilising all willing stakeholders. The days of pure aid are over. Africa is ready for sustainable investment."

RÉMY RIOUX

Chairperson of the International Development Finance Club

"People and companies everywhere are turning to technology to fuel their post-pandemic recovery and improve access to global trade. DUBUY.com represents a new model of trade in Africa, designed to strengthen its existing potential and open businesses and markets organically by enabling trade and supplying innovation. This technology allows home grown businesses to become international manufacturers and exporters by linking them with new markets in Africa and the rest of the world."

MAHMOOD AL BASTAKI

Chief operating officer of Dubai Trade World

"The onset of the Fourth Industrial revolution led to the introduction of numerous digital technologies. Through its broadband strategy, the government of Botswana as well as companies in the private sector have made substantial investments towards ICT to facilitate a digitally inclusive economy. Liquid has been partnering with stakeholders in the local community as a connectivity provider so far, and now we have the opportunity to partner with them with our digital solutions in the cloud that will be vital to ensure a digital adoption that bolsters the local economy."

Image Credit: Liquid Intelligent Technologies Botswana

ODIRILE TAMAJOBE

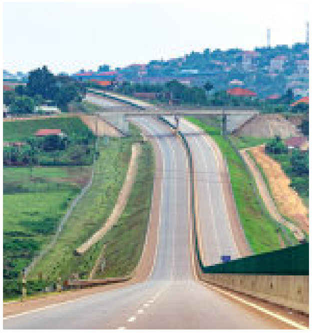
Managing director of Liquid Intelligent Technologies Botswana

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

AFDB SIGNS US$348MN AGREEMENTS FOR UGANDA'S ROAD REHABILITATION PROJECTS

Image Credit: Adobe Stock



The aim is to accelerate the country's development objectives.

The African Development Bank and the government of Uganda have signed two financing agreements, totalling around US$348mn for the improvement of road transport in Uganda.

The first is a US$276mn financing agreement for the Kampala City Roads Rehabilitation Project; and the second, valued at US$71.8mn, is for upgrading the Kabale-Lake Bunyonyi/Kisoro-Mgahinga road.

The Kampala City Roads Rehabilitation Project will ease congestion in the capital by upgrading 22 road junctions, and enhancing the drainage capacity of the city to mitigate flooding on the streets. The project will see the improvement of 67km of roads, 134km of non-motorised traffic facilities, and the provision of street lighting and scheduled eco-bus services, including bus depots and dedicated lanes. It includes several complementary social initiatives, notably entrepreneurship training for at least 200 women and youth, and the construction of roadside markets and at least 30 public toilets in Kampala.

MONDIA PARTNERS WITH MTN NIGERIA

Image Credit: Mondia

Mondia.cell is the joint venture entity under which Mondia operates in Nigeria.

Mondia, a private m-commerce company, dedicated to connecting, digitalising and monetising mobile consumers, has announced the launch of Getmo Games, a new gaming service for MTN Nigeria (MTNN) subscribers.

Getmo Games is an exciting games service, offering unlimited Android and online HTML5 games to subscribers, based on an All-You-Can-Eat (AYCE) subscription model.

MTN customers can now enjoy thousands of premium casual games across a wide variety of genres with daily, weekly or monthly subscriptions, depending on the preference of the subscriber.

Speaking on the partnership, Srinivas Raos, chief digital officer at MTN Nigeria said, "The gaming industry across the world is experiencing a boom because of the benefits of games, which include aiding mental alertness amongst other benefits."

Mondia.cell is the joint venture entity under which Mondia operates in Nigeria. The agreement with MTNN marks the continued expansion of Mondia's offering across innovative subscription models and entertainment platforms, creating digital experiences for new markets.

Delivering warehouse solutions for e-commerce

Consumer demand for e-commerce is growing at an exponential rate across Africa, and those providing distribution and fulfilment operations need to meet these demands through intelligent design of their facilities to ensure storage capacity and pick efficiency are at an optimal level.

For a warehouse to be truly efficient it is important to take a data-driven approach to the design which, in turn, identifies the need for products most appropriate to the solution, from very narrow aisle racking, carton live, or wide aisle racking with the use of forklift trucks for movement of goods to a manual pick location.

SEC worked with a customer looking to optimise storage capacity for their e-commerce operation, by undertaking detailed analysis of its operational and product data to then provide a design and installation proposal for a pallet racking and storage solution that would increase storage capacity and pick efficiency. This ensured productivity levels were in line not only with current requirements, but specifically for their expected high levels of expansion through growth in online sales.

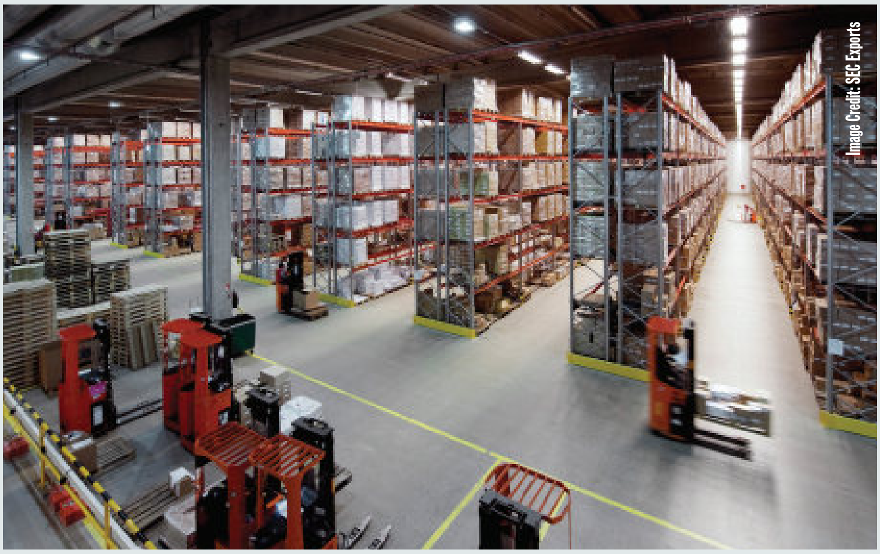


Image Credit: SEC Exports

SEC Exports is experienced in installing intelligent warehouse storage solutions to customers in Africa.

Since the installation, stock holding capacity has increased by 300% and this ability to hold larger volumes of their best-selling products, has had an immediate, positive impact on the business with a significant increase in sales.

SEC Exports has a wealth of experience in managing the delivery and installation of intelligent warehouse storage solutions to international customers across Africa, with access to the full range of genuine Dexion products.

www.sec-exports.co.uk

Tech trends that cannot be ignored in 2021 and beyond

Emmanuel Osanga, head of Africa Regions Data Office at Standard Bank Group, explains why companies should embrace technological change to ensure their survival in the future.

The Covid-19 pandemic has accelerated reduced physical human interaction with more people engaging online now than ever before. This is unlikely to fade anytime soon and will see the increased datafication of our lives.

Every click leaves a digital or data footprint – a trail of information that we have viewed or created. These digital footprints will only become greater as 5G roll out is accelerated. Beyond speed improvement, 5G allows for autonomous and remote control of robotics and other types of Internet of Things (IoT) devices. As these technologies feature more prominently, the rate at which new data is generated will become even more frightening. For organisations, preparing to be a part of this change will be critical to ensuring future survival.

Unstoppable tech trends that will rule in future

Intelligent automation is transforming our workplaces. Every organisation should embrace automation; it holds the potential to increase efficiencies and productivity across industries, and contribute to economic growth. Interface innovations like Amazon's Alexa and Apple's Siri have enabled the ease of interaction with technology, and as these interfaces advance, the symbiotic relationship between technology and humans will become more of a reality.

Big data is one of those megatrends that will impact our lives in one way or another – both negatively and positively. There are major concerns around data privacy, security and sharing that need to be addressed collectively. Blockchain technology addresses some of these concerns because it will overhaul how we store, share, and protect data much more efficiently. Finally, platform models will continue to drive new ways of doing business. Embodied by the likes of Alibaba, Uber and Amazon, these businesses have shifted the way business is done in their sectors. We should see a similar pattern in financial services and health.

Meeting the challenges of technological change

While these advancements and trends offer the potential to transform businesses and the lives of their clients, there are important challenges to consider.

For organisations to participate in the platform space, as drivers, orchestrators or platform users, they must be well positioned from a technology point of view. Many companies with legacy IT systems will face hurdles in this regard and will be forced to invest in transformation or risk losing out in value chains created.

Another key challenge that cannot be ignored is data mistrust. Individuals want to know that their data is not being misused or abused. It remains to be seen how regulators will respond regarding ethical issues with data, and those organisations that operate within highly regulated industries will need to begin engagements with regulators sooner rather than later.

The geopolitics of data will also have an impact in the future. Recently, we have seen some countries implement total internet shutdowns. When that happens, how do you access data sitting in, say, Ireland? Data will become a national asset and certain platform providers, such as Amazon are now opening data centres on the continent in response.

Image Credit: Standard Bank

Emmanuel Osanga.

As technology advances at a rate never seen before, the skills gap continues to widen. There is a major shortage of data science skills not only on the continent but globally. These skills will continue to be in high demand and the challenge for companies is to find ways to mitigate this risk.

How organisations should prepare to remain relevant

As African organisations, we must embrace digital commerce and finance to remain relevant on the global stage. This will be critical as the continent transfers to a services economy. With its young population and absence of legacy issues Africa, is well placed to become the next sourcing centre from which the rest of the world can procure services.

Further, as economies recover post the pandemic, we must be as close to consumer interactions as possible. Gaining insight into what your consumers are saying must be prioritised. But to be able to mine and extract insights and drive data science initiatives, a big pipeline of skills is required.

Organisations will have to invest in building a data-driven culture and invest in initiatives, such as data science academies to ensure the availability of appropriate skills. The more companies automate, the less traditional skills are required but that does not mean there is not a place for them within the organisations. Those resources can be repurposed by adding additional skills, such as data and digital literacy.

With the increasing demand for these skills not only on the content but across the globe, developing data science academies has the potential to create employment on the continent but this will largely depend on the strategies of government and organisations.

Those organisations that can get this right will win in their industries.

The opportunity for the African continent

The African continent has greenfield advantage in that it is not weighed down by legacies that other parts of the world would struggle with. African countries and organisations can innovate and create from scratch and become early adopters of disruptive technology.

The continent is not without challenges. But impediments should inspire us to become innovative by engaging with these advancements. The challenge of internet access has been solved in part by mobile networks. Mobile money came out of mobile penetration in Africa. If we waited for internet access to provide financial services, we would still be waiting.

Over and above the young population dividend, we should take advantage of initiatives, such as the African Continent Free Tree Area, which enables the entire continent to be able to trade with one another and will accelerate our ability to transfer innovations across the continent. ■

Transforming businesses through use of technology

Bradley Pulford, the new managing director and vice president of HP in Africa, unveils the benefits of rapid adoption of technology for businesses and societies in Africa amid the Covid-19 pandemic.

African Review: How does HP envision making an impact on the continent in the next five years?

Bradley Pulford: I am excited to be working with Africa, a region which has huge potential for growth in terms of technology, especially as we learn to live in a more fast-paced world. Covid-19 really exposed the digital divide that exists in the continent, and we need to work towards bridging this gap. But this will not happen if we do not learn to work together and realise what technology can do to advance our businesses, education, and lives.

Our aim is to make people's lives better using technology; whether it is by helping young entrepreneurs prepare for the impact of the Fourth Industrial Revolution, through programmes like HP LIFE, or helping local and international organisations and NGOs.

What is important is innovation: as a business, we are reimagining workforce culture, collaboration, and creativity. This means driving innovation in our technology and services for hybrid ways of working and leading powerful advancements in VR, AI and cloud computing. Sustainability also plays a big role in our strategy – we are seeking to get more involved in sustainable activities in Africa that support people, the planet and communities. HP works with its suppliers to protect the planet, and as part of that we have set ourselves a target of doubling factory participation in our supply chain sustainability programmes by 2025; there was a 53% increase in 2019, compared to 2015.

Another crucial focus area is diversity; we believe that a workforce is more efficient when it consists of people from a wide range of backgrounds, cultures and heritages, which is why we seek to foster a culture of diversity and inclusion across the business.

AR: Do you think Covid-19 has set technological development back in Africal?

BP: New technologies have been adopted in Africa due to Covid-19 – these include 3D printing, deploying AR/VR for training, and further developing the workplace and educational tools of the future. The pandemic has also had a huge part to play in terms of accelerating the digital transformation.

From an HP perspective, we have seen the effects of Covid-19 in certain industries, especially in the education sector, where the rate at which schools closed was critical for us to respond and ensure that platforms and the access to learning were available for many of the learners across the continent. Africa stands in a great position in terms of the acceleration from a remote work point of view; organisations are shifting flexibly to a remote working platform for many of their employees.

Africa is the continent that is out-paced in terms of learners getting the access to devices to help them learn from home, which also stalls the potential that Africa brings around education. Africa has a large number of young people between the ages of 15 and 24, at that level where education and entrepreneurship is very critical. We view this potential as a big responsibility to ensure that we have the necessary tools, platforms and devices to ensure that we foster an environment where people are able to learn and acquire new skills.

Our role is to ensure that teachers can develop the necessary competences to educate their students in a new hybrid environment. In Nigeria, Ghana, and South Africa we have already launched our Innovation and Digital Education Academy (HP IDEA).

> “As a business, we see an incredible opportunity to transform companies and industries using VR.”

AR: How is technology helping entrepreneurs build sustainable businesses in Africa?

BP: Our vision is to create technology that makes life better for everyone; every person, every organisation, and every community around the globe. We are continuing to drive access to quality education globally, enabling anyone and everyone to build skills to compete. This includes BeChangeMaker.

BeChangeMaker provides access to high quality learning content on HP LIFE, tools and technology for startup acceleration, dedicated coaching, mentoring and customised support, as well as the opportunity to tap into a diverse global network of potential supporters and investors.

AR: What are the future technologies to watch out for in 2021 and beyond?

BP: The global AR and VR market is expected to grow to US$209.2bn by 2022. The VR landscape is rapidly changing amid the Covid-19 pandemic. A large proportion of the

Image Credit: HP

Bradley Pulford.

workforce is working from home multiple days a week and is searching for new ways to collaborate, whilst gamers are seeking further immersion and intricate detail during play. We are creative in VR, innovating in both hardware and software to offer the world's most comprehensive VR portfolio and unlock VR's full potential, creating the next generation of employee and customer experiences.

As a business, we see an incredible opportunity to transform companies and industries using VR. The five big areas of growth we see are in architecture, construction & engineering, product design, training in both hard and soft skills, healthcare and location-based entertainment. By 2030, 23 million jobs will involve AR and VR in one way or another.

3D printing will also start breaking into more commercial industries and continue to lead the Fourth Industrial Revolution. We are already seeing more uses for 3D printing in the automotive, transport, industrial, medical and consumer markets. 3D printing, along with analytics and virtual technology, will continue to impact industry and manufacturing by shortening production processes and supply chains. ■

Storage ramps up

Barry Mansfield looks into the factors behind soaring demand for logistics and warehousing in Nigeria.

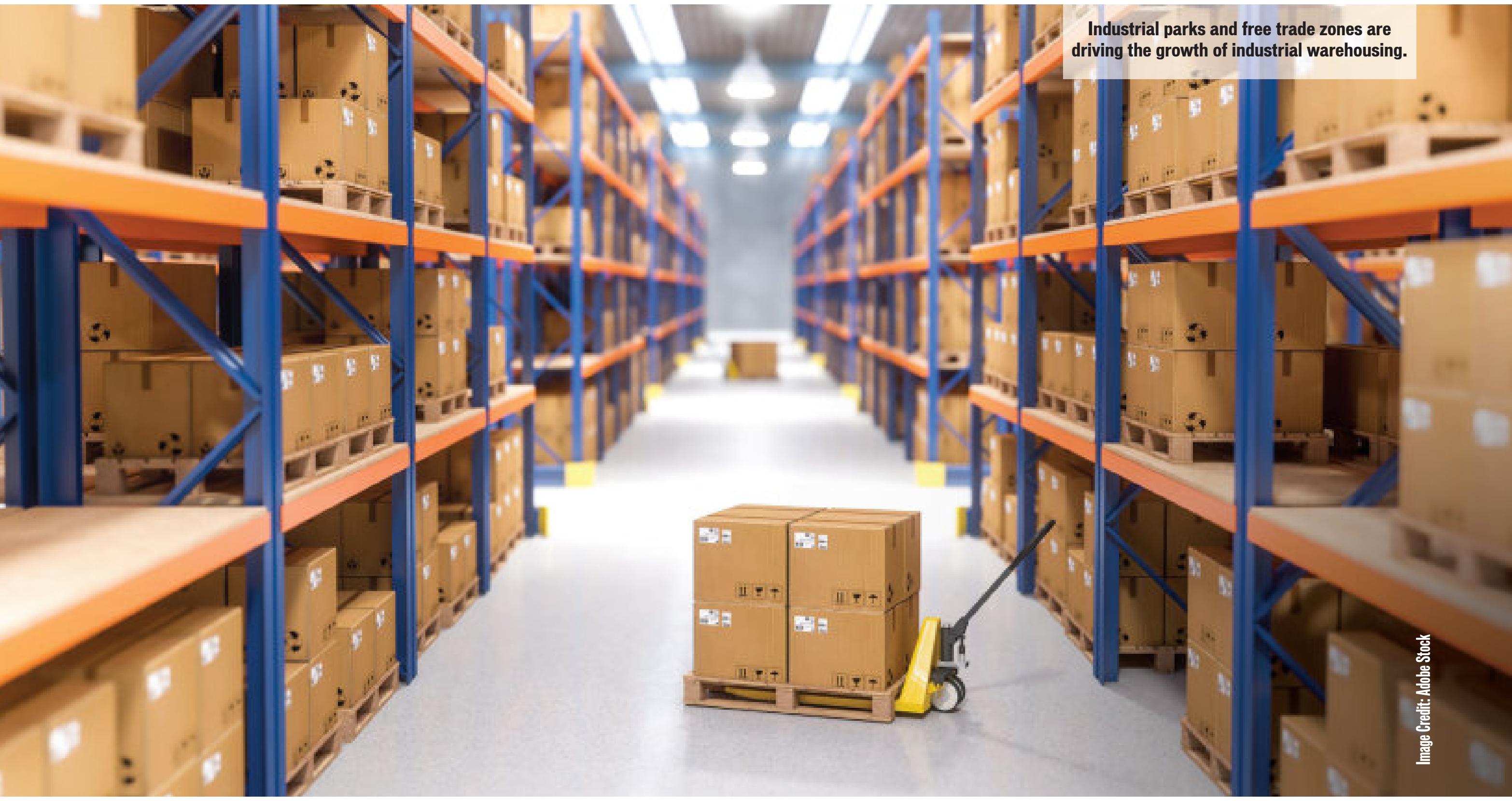

Industrial parks and free trade zones are driving the growth of industrial warehousing.

Image Credit: Adobe Stock

Nigeria's warehousing market is projected to continue to grow in the run-up to 2023, due partly to the country's ambitious infrastructure plans. This apparently unlikely trend comes at a time of great economic uncertainty for the country, which recently tackled its second recession in four years and a collapse in crude oil prices that knocked national budgets out of balance. GDP growth had already slowed considerably since the 2000s. Although Covid-19 hit Nigerians' discretionary income hard last year, increased spending on food and a preference for local goods is another story behind the growth of the storage sector. More extensive use of dry ports is expected to boost demand for freight forwarding and warehousing services.

Growth in the last decade was mainly due to an increase in international trade volumes, market entry of international players, the emergence of popular supermarket chains, the evolving e-commerce market (today estimated to be worth US$13bn by the Economist Intelligence Unit) and a remarkable increase in industrial development as a result of Nigeria's enforcement of import bans and its continued quest for self-sufficiency. The food and beverage industry is highly influential, with Nigeria seeing a tremendous boost in trade of food products with Asia and Europe – but also increased domestic demand for local food products. Due to infrastructure challenges, the big market players in Nigeria prefer to outsource services to local transporters and focus on their core competencies.

This is still a chaotic market, fragmented and largely characterised by godowns and unstructured warehouses that lack fully-fledged modern facilities and automation. Godowns are typically used for provision of third-party services to international logistics firms. Clients are swayed by factors such as cost, area, capacity, availability of modern technological equipment, CCTV, security and proximity to the airport, seaport and railways. Facilities located close to the capital, Lagos, tend to charge higher fees than providers elsewhere due to their strategically valuable location. Around 60% of warehouses are strictly regulated by NAFDAC in an effort to tackle the relatively poor current standards and the threat of smuggling.

Now the government seeks to build new structures in close proximity to ports, in order to create a more efficient ecosystem. Closed warehousing space includes closed regular warehousing, temperature-controlled warehouses ranging from palletised warehouses for stacking goods (often with automated features) to the commonplace godowns. It also includes cold storage that has potential to reduce food wastage. In Nigeria, small- and medium-sized players outsource their warehousing function due to the shortage of high quality warehousing and the massive capital

“More extensive use of dry ports is expected to boost demand for freight forwarding and warehousing services.”

investment involved. Contractual logistics is also pervasive in the world of Nigerian e-commerce and cold chain warehousing, as construction and maintenance costs are so prohibitively high.

The latest government intervention along these lines is the US$1.5bn Lekki deepsea port, set to be completed by 2023. Occupying 90ha of land at the centre of the Lekki Free Trade Zone (LFTZ), located around 60 km east of the capital Lagos, it is the country's very first deepsea port, a multi-purpose facility with container, liquid and dry bulk terminals. These will accommodate vessels of up to 8,000 TEUs, dry bulk vessels, and liquid bulk cargo vessels. The new site will serve as an alternative to Apapa Ports. In May, it was revealed that the Lagos State Government had secured a loan of nearly US$630mn to contribute to the ongoing work. The first phase should be finished next year, including the piped gas distribution network, ready-built industrial and residential buildings and the Industrial Training Centre.

So, industrial parks and free trade zones are driving the growth of industrial warehouses. CFS/ICD warehousing contributes a lesser market share, even though Nigeria is an import-driven country. Cold storage has increased with the rising demand for temperature-controlled products for the seafood and pharmaceutical industry, but remains a small segment and therefore still contributes relatively little in terms of revenue. Lagos is the heartland due to its proximity to major seaports, airports and industrial parks. Other warehousing hotspots include Ogun state near Lagos, Kano, Ibadan, Kaduna near Abuja and Nassaraw. However, investors and logistics providers are now searching in less congested areas around Lagos for inexpensive alternatives.

Cold storage innovation

Emerging trends in the food and drink sector have also powered innovation in the local warehousing industry. For example, Nigerian firm ColdHubs developed propane and solar-powered walk-in cold-rooms designed for the use of retailers, farmers and wholesalers. These 'plug and play' modular systems are mainly installed at key food production and consumption centres, including markets and farms. ColdHubs has provided its service to more than 3000 customers using a pay-as-you-store, per crate daily subscription model. Nnaemeka Ikegwuonu's award-winning system prevents food loss and improves small-scale post-harvest infrastructure; it is estimated that the innovation saved 20,400mt of food from spoilage in 2019.

Similarly, Nigerian startup Kennie-O Cold Chain Logistics, which provides cold-storage services to fresh produce farmers, was established after entrepreneur Ope Olanrewaju experienced heavy financial losses while transporting chicken in an unreliable refrigerated lorry. Olanrewaju researched the issue and was shocked by the amount of fresh food and vegetables wasted every year in Nigeria due to the lack of suitable facilities. Continent-wide, the losses are even more stark. Around 70% of Africa's food is provided by smallholder farmers and they are taking a financial hit from post-harvest losses. Olanrewaju says he aims to close that gap by helping these smallholder farmers switch to other temperature-controlled environments. ■

Scaling up the MSME sector in the post-Covid recovery

Economist Moin Siddiqi looks at the importance of MSMEs as the foundation on which African economies will be able to grow and fully recover after the pandemic.

Micro-, small- and medium-sized enterprises (MSMEs) form the bulk of the business universe in African countries. They are pivotal to the revival of the post-pandemic economy, with the potential to nurture a new middle-class and boast demand for local goods and services. The entrepreneurship role in driving innovation, creating jobs and social inclusion, thereby contributing to wealth creation, is critical for sustained economic development. But compared to other developing regions, Africa has lagged behind in building a strong MSME sector.

Though modest in size, SMEs outnumber large firms considerably and employ far more people. SMEs are generally entrepreneurial in nature, helping to shape innovation and enhance competition in many sub-sectors. Their dynamism allows for a faster decision-making process and efficiency. Other benefits are:

- Contributing to the local economy in terms of output of goods and services.
- Improving 'forward' and 'backward' linkages (see terminology opposite) between economically, socially and geographically diverse sectors.
- Creating jobs at low capital cost, especially in the fast-growing services sector.
- Developing a pool of skilled and semi-skilled workers as a basis for future industrial expansion and export opportunities.
- Providing a vehicle for reducing income disparities and combating poverty.
- Offering a breeding ground for entrepreneurial/managerial talent and embracing new technologies, the critical shortage of which is often a barrier to robust economic development.

Measuring business regulations in selective sub-Saharan African countries (ranking 1-190 countries)

	Starting a business	Registering a property	Getting credit	Protecting minority investors	Paying taxes	Enforcing contracts
Angola	146	167	185	147	106	186
Botswana	159	82	80	72	59	137
Cameroon	104	175	80	157	181	167
Congo DRC	54	159	152	176	180	178
Côte d'Ivoire	29	112	48	120	114	94
Ethiopia	168	142	176	189	132	67
Ghana	116	111	80	72	152	117
Kenya	129	134	4	1	94	89
Mauritius	20	23	67	18	5	20
Nigeria	105	183	15	28	159	73
Senegal	60	116	67	114	166	132
South Africa	139	108	80	13	54	102
Sudan	157	95	176	153	164	148
Rwanda	35	3	4	114	38	32
Zambia	117	149	4	72	17	130

Source: World Bank Doing Business Report 2020

Some popular SME businesses are light manufacturing (footwear, clothing and garments); agro-processing; bars/restaurants; dentists; law offices; hair salons; gyms; high-tech starts-up; and private educational institutes, among others.

Stiff obstacles

Life as an SME can be tough and challenging due to a host of factors, chiefly:

- Poor financial support and credit environment. Around 40% of SMEs in Africa face severe equity shortfalls to fund their endeavours, according to investment firm, Investisseurs & Partenaires. Some estimates put the current funding gap at over US$140bn. Lenders seek high collateral amounts, which leave smaller companies prioritising loan repayments or face risking default. There is, however, credit risk associated with lending to the SME sector.
- Most African countries lack depth and liquidity within fledgling local capital markets – leading to heavy reliance on bank loans. Conventional debt is a tax-deductible form of capital raising that suits big companies but is ill-suited for SMEs. The purpose of capital markets is to promote growth by channelling capital – ranging from micro-finance, angel investor to venture capital, private equity and potentially, a listing i.e. Initial Public Offering (IPO) on growth segments of local exchanges. Hence, for a market to work smoothly, capital should flow effectively from investors to businesses of all sizes.
- Onerous regulations (i.e. red-tape) hinder SME expansion. A protracted set-up time for SMEs and registering property in Africa are not unusual, whilst most businesses must comply with many formalities to pay taxes. This is confirmed by the World Bank's *'Ease of Doing Business 2020'* report, where only Mauritius, Côte d'Ivoire and Rwanda ranked among the top 50 (out of 190 markets surveyed) in terms of business start-ups, whilst the majority ranked well-above the 100 mark – led by Ethiopia, Botswana, Sudan, Angola, South Africa and Kenya (see table above).
- Taxation and fiscal regimes are not supportive of SME development: For example, Nigeria's SME sector revealed that some start-ups had paid taxes since their incorporation but without receiving any tax benefits or breaks from the government. Likewise, private investors and institutions gained no tax incentives for their risky investments with this sector. By contrast, most developing/emerging countries regularly offer SMEs favourable tax treatment and better credit access, thereby keeping them in business.
- Other capacity gaps include non-availability of audited financial data, coupled with a long-term business plan, and problems of developing/retaining a talented workforce. In many cases, company boards are lacking altogether.


Common SMEs are light manufacturing businesses, such as clothing and garments.

Image Credit: Adobe Stock

Supporting future businesses

The Africa Advisory Group (AAG) of the London Stock Exchange offered practical suggestions to aid emerging businesses in Africa, where a supportive environment is not fully aligned with global capacity building programmes. "Governments should therefore aim to embed SME development strategies in their broader national development and growth strategy," noted AAG. This could be done by:

- Facilitating/encouraging SME growth through an enabling legal, regulatory and administrative environment. Transaction costs in setting up and running a company should be minimised by fairer, simple and less costly taxation, customs, licensing, registration, and judicial and other procedures. Fiscal incentives would induce higher investor participation and offset views of SMEs as risky ventures.
- Supporting training to coach SME owners on how to make their businesses grow and survive, as well as special audit programmes to target high-risk areas and boost tax compliance. Governments can also develop a SME hub or an advisory unit comprising brokers, lawyers and financial consultants that specialise solely in SME corporate finance. In Nigeria, the SME Development Authority offers networking/training sessions to help SMEs access external grants.
- Working with stock exchanges to facilitate the creation of SME segments: more African governments are advised to cooperate with their local stock exchanges to create special SME segments for easier listing (i.e. IPOs). Having a tier-based listing process would support SMEs' potential in qualifying for more relaxed listing criteria, after which they could progress to the exchange's main market. Some countries have launched SME market segments, notably Nigeria (AseM), Kenya (GEMS) and South Africa (AltEx), as well as Rwanda.
- Establishing a domestic or regional online registrar where company information is publicly available, which would generate credibility, enable quick access and facilitate investor participation. The UK's 'Companies House' is a good example, where all registered limited companies must file annual financial statements. By filing public records, the registered company signals trust.
- Strengthening SMEs' role in the wider economy; African governments are encouraged to work closely with large corporations and create a strategy where SMEs could be further included in lucrative businesses through preferential involvement in value chains or governmental projects.
- Raising awareness of promising African private companies via showcasing to the public. Such initiatives could involve publications from official credible sources, providing key information about companies such as the business model, expansion plans and governance.

In sum, as African economies recover from the global pandemic, it is vital that the MSME segment develops across agriculture, manufacturing and services sectors, thereby acting as a catalyst of socio-economic transformation of the continent. Therefore, given ready access to seed capital and financial incentives, basic and technological infrastructure, a reliable legal/regulatory framework, and local pool of expertise/knowledge, MSMEs can make significant contributions. "With the right combination of advice and support, SMEs can navigate the challenges, identify the right forms of equity/capital-raising and drive growth to support the economic development of the continent," reported the AAG. ■

INDUSTRIALISATION TERMINOLOGY

- **Small and Mid-size Enterprises (SMEs)** are businesses that maintain revenues, assets or workforce below a certain threshold. Each country has its own definition. According to the EU's website, "SMEs are made up of enterprises which employ fewer than 250 people with an annual turnover not exceeding 50 million euros (US$60mn) and/or an annual balance sheet total not exceeding 43 million euros (US$51.6mn)." The Bank of Industry defines the MSME sector in Nigeria as follows: micro enterprises: between 1 and 9 employees, total assets and annual turnover below N5mn (US$12,000) and N20mn (US$49,000); small enterprises: below 50 employees, total assets N5mn-99mn (US$12,000- US$242,000) and an annual turnover below N100mn (US$245,000); and medium enterprises: 50 and 250 employees, total assets N100-499mn (US$245,000-US$1.2mn) and annual turnover below N499mn (US$1.2mn).
- **Backward integration** reflects the extent to which a country is integrated relatively downstream of the value or international supply chain.
- **Forward integration** reflects the extent to which a country is integrated relatively upstream of the value or international supply chain. Combining backward and forward integration provides a measure of total global value chain (GVC) participation and the degree of industrialisation.

CallisonRTKL highlights five key trends in building net-zero cities in the MENA region


Image Credit: CallisonRTKL

Enabling net-zero cities presents challenges.

Industry experts from CallisonRTKL (CRTKL), the global architecture, planning and design firm, have revealed five key trends for the development of net-zero cities in the Middle East and North Africa region.

Experts highlight the need to ensure the use of sustainable construction materials and adapt products to be able to offset carbon emissions during manufacture; use design processes and tools to enable sustainable construction and environmental performance; use smart, digital design tools to facilitate complex planning and sustainable development; implement smart cooling systems to implement net-zero climate control; and foster wider industry collaboration as key pillars of further net-zero development in the region.

With governments across the region pursuing key clean energy strategies over the coming decades, enabling net-zero development across the region is a key aspect of driving wider sustainability savings. CallisonRTKLn has committed itself to a net zero carbon operation for all its projects by 2030 and carbon neutral (including embodied in construction materials) by 2050.

Matthew Tribe, principal at CallisonRTKL, commented, "The MENA region is globally recognised for pioneering new technological sustainability solutions, yet with the region's climate and economic growth strategies, enabling net-zero cities presents a challenge for planners to overcome. Our vision for regional sustainable development is premised on collaboration across the architecture and design sector, using data-focused digital tools to drive industry-wide learning and understanding.

"CallisonRTKL's pursuit of net-zero development across the global architecture sector is demonstrative of the wider climate issues which the world is facing, and how the design and construction industry has to meet its obligations as a sector. Through fostering new forms of industry wide collaboration, we hope to be part of that broader conversation on enabling net-zero development that can benefit all."

SOUTH AFRICA ROAD CONSTRUCTION PICKS UP

South Africa's construction industry is set for recovery, according to a report by Yaa Agyare-Dwomoh, a consultant at Frost & Sullivan Africa.

"With SANRAL (the South Africa National Roads Agency) spearheading the revitalisation of the road construction industry, the market is optimistic of SANRAL's ability to perform and award tenders. Additionally, the market is likely to see some 'green shoots' from government's massive infrastructure investment drive as gazetted by President Cyril Ramaphosa in October 2020," said Agyare-Dwomoh. This involves the implementation of at least 50 infrastructure projects with a total investment value of more than R340bn (US$24bn), of which R47bn (US$3bn) is allocated to road construction over the next three years.

As SANRAL continues to make positive strides in awarding tenders, it is expected that the demand for contractors will pick up in the next two to three years, Agyare-Dwomoh added.

POTAIN MDT 489 TOPLESS CRANE LAUNCHED

Potain has launched the MDT 489 topless crane from Manitowoc, which fills the gap between the manufacturer's popular MDT 389 and new MDT 569 models and is ideal for large-scale construction and infrastructure projects, especially the installation of large, prefabricated components, as well as for shipyards and mines with heavy loads to handle.


Image Credit: Manitowoc

The MDT 489 topless crane.

The MDT 489 delivers a high capacity with a maximum load of 22 USt (20 t) or 27.6 USt (25 t) and a 262ft (80m) jib for broad coverage and reach on the jobsite, while offering the cost-saving benefits of easy transport and quick assembly and disassembly. All components, save the slewing mechanism, can be transported in standard-sized shipping containers. Assembly takes a maximum of two days and requires very little space. The compact crane configuration enables it to operate on tight and congested sites.

The MDT 489 is equipped with the latest Potain technologies to maximise performance, including the CraneSTAR Diag solution which allows the customer to consult the machine's activity in real time.

BRIEFS


Image Credit: Adobe Stock

The new system In Egypt is designed to stop illegal building.

New licensing system in Egypt

Egypt is looking to introduce a new building code and system of issuing construction licences designed to stem the tide of haphazard and illegal building, according to a report in Egypt's Al-Ahram newspaper.

Under the new system, which is set to be rolled out for one month in 27 cities before being extended to all other cities, there will be an inspection committee in each city or district in charge of reviewing building requests and issuing licences.

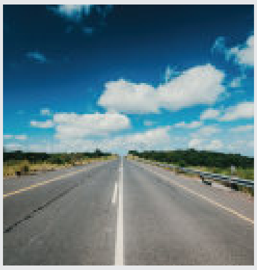


Image Credit: Adobe Stock

The road is part of the LAPSSET project.

Kenya road contract awarded

The Kenya National Highway Authority (KeNHA) has awarded China Communications Construction Company (CCCC) a US$166mn contract to construct a 453km road in the Lamu Port South Sudan-Ethiopia Transport Corridor (LAPSSET), which will boost trade and transport across East Africa.

CCCC is also the main contractor on Lamu Port, the first phase of which, consisting of three berths, is expected to be completed by June.

Bobcat launches new generation of telehandlers in Africa and the Middle East

Bobcat has launched the company's new generation R-Series telehandler range for the Middle East, Africa, Russia and CIS markets, providing a choice of 12 models, powered by Stage IIIA engines.

T36.120SL – Middle range telehandler.

The new telehandlers cover lifting heights from 6 to 18m, with maximum lifting capacities between 2.6 and 4.1 tonnes. This is the latest phase in Bobcat's revolutionary 'Next is Now' programme, combining innovative product development and diversification with more intelligent, user-friendly technologies that reshape how work gets done.

Commenting on the R-Series launch, Gustavo Otero, president, Doosan Bobcat EMEA, said, "Telehandlers are a fundamental asset of our business strategy and a key pillar of our 'Next is Now' initiative. Our new ground-breaking R-Series offers high performance, robust machines for maximum uptime with a focus on accurate controls and intuitive operation for tackling any job on the construction site. With these new models and the increased investment in our telehandler business, we are aiming to double the production of Bobcat telehandlers by 2025."

The new R-Series range of telehandlers from Bobcat comprises the models below:

Compact telescopic loaders – TL26.60, TL30.60 and TL30.70.

Middle range telehandlers – TL35.70, T35.105, T35.105L and T36.120SL.

High lift telehandlers – T35.130S, T35.130SLP, T35.140S, T41.140SLP and T40.180SLP.

Otero continued, "Bobcat telehandlers are popular in MEA and we want to further improve our presence and accelerate our growth in the MEA construction and rental market with this new generation. Leveraging from the ease of use, safety and reliability of our equipment, we aim to be present on every job site, where this kind of equipment is needed."

Inside the new cab of the Bobcat R-Series telehandlers.

Precise control and placement at height

The R-Series telehandlers offer agility on demand, with a newly configured transmission system providing enhanced smoothness to carry out the trickiest jobs at height with surgical precision. These operations are also facilitated by the combination of the Boom Positioning System, the new updated, ultra-accurate joystick, the inching function and the improved visibility from the cab.

New cab for remarkable operator experience

Bobcat R-Series telehandlers feature a new cab with unmatched ease of use, designed around the operator, offering a unique central control panel for optimised 360° ergonomics. The high quality, contemporary interior of the cab features stand-out R-Series branding, colours and textures that clearly reflect Bobcat's DNA. ■

For more information visit www.bobcat.com

What's new in construction?

As the African construction market rebounds from the Covid-19 pandemic, a host of equipment providers have released their latest innovations to take advantage of and serve this blossoming market.

While many sectors are still feeling the effects of Covid-19, the African construction industry has bounced back quickly and is preparing for a sustained period of growth over the next few years. At least, this is what was suggested by Reportlinker in its *'Africa Construction Market – Growth, Trends, and Forecast (2020-2025)'* report, which noted that between 2019-2024, Africa's construction market is expected to register a compound annual growth rate (CAGR) of 6.4%.

This growth has been assigned to the huge natural resources, attractive investment opportunities in energy and infrastructure, cheap labour and a fast growing consumer market. A number of notable mega projects, such as the New Administrative Capital in Egypt, the Konza Technology City in Kenya and the Tilenga/EACOP projects in Uganda and Mozambique will also, over the next few years, direct a substantial amount of capital into the continent's construction industry. Additionally, a number of national initiatives, such as Kenya's Vision 2030 and Tunisia's 2020 five year development plan, are aimed at stimulating a range of industries through small- to large-scale projects, which will all provide opportunities for the construction sector.

This market expansion is also evidenced by the fact that in recent months several major construction companies have rapidly moved to expand operations in the African market, in order to take advantage of this forthcoming boom.

Hyundai Construction Equipment (HCE), an affiliate of the Hyundai Heavy Industries Group, has announced that it will accelerate its forays into the East African market by signing a distributorship agreement with NEFC. HCE intends to supply excavators, wheel loaders, backhoe loaders, motor graders, and forklifts and strive to meet customers' needs in the region, with a focus on diverse solutions and educational sessions provided to teams in charge of sales, services and parts.

John Deere has also recognised the potential the continent holds by announcing plans to expand its construction line-up to 18 countries across southern and western Africa. This expansion, which will include the availability of backhoe loaders, excavators, wheel loaders, motor graders, and crawler dozers, will be sold and supported by independent John Deere dealers. Customers will also have access to the John Deere suite of technology solutions, including JDLink Telematics, which provide valuable fleet insights on the job site.

See below: the machinery released to ensure that the African construction industry is equipped to facilitate this expansion.

THE CAT 815 SOIL COMPACTOR

The Cat 815 features a new radial air filter that delivers three times the life of the previous design.

Image Credit: Caterpillar

Caterpillar has released the 815 Soil Compactor, powered by the Cat 7.1 engine, featuring technology upgrades to help increase productivity and efficiency with new machine designs and revised service groupings combining to cut maintenance costs by up to 9%. With all components relocated from the cab roof to lower overall transport height, the redesigned operator's cab upgrades the steering and climate controls to elevate comfort alongside a new Premium Plus seat with a leather finish. The Cat 815 is built for high-speed, high quality soil compaction with its four 39-in (991-mm) wide steel drums. Drum design boasts a chevron pattern to the tamping tips, delivering high ground pressure and compaction, excellent traction and smooth ride. A symmetrical tip pattern offers equal compaction effort in both forward and reverse, and the special tamper design reduces material fluffing. Adjustable cleaner bars eliminate material carryover regardless of rolling direction to maximise compaction efficiency. The compactor also boasts a variety of features to improve visibility such as Compact GPS mapping, Machine Drive Power and the Vital Information Management system.

WIRTGEN'S KMA 240(I) COLD RECYCLING MIXING PLANT

Wirtgen KMA 240(i) at Paderborn- Lippstadt Airport

Image Credit: Wirtgen

The KMA 240(i) is the latest high-performance Wirtgen solution for environmentally friendly and cost-effective mix preparation in the immediate vicinity of the job site.

The KMA 240(i) cold recycling mixing plant produces mix that can be paved immediately and is suitable for the production of various types of bound base layers. In addition to cement-treated base layers and roller-compacted concrete, the machine can also be used to produce bituminous bound base layers (with emulsion or foamed bitumen).

Wirtgen's cold recycling technology not only maximises sustainability, but also offers tremendous savings potential in addition to conserving natural resources, such as reusing 100% of existing material, 100% less waste, 90% less material transported to the job site, 90% few resources used, and 50% fewer binding agents required.

With its 6-cylinder diesel engine, the new KMA 240(i) mobile cold recycling mixing plant can produce 240 tons of mix per hour from various construction materials.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BOBCAT'S SMALL ARTICULATED LOADERS

The L23 and L28 small articulated loaders (SALs) have been launched by Bobcat. Offering high lift capacities in confined spaces, ease-of-use with simple intuitive controls and low ground disturbance for working on any terrain, the new SALs continue Bobcat's expansion in the compact wheel loader market.

With a width of over one metre, the new SALs offer impressive stability and tipping loads of up to 1.39 tonnes. The high lift capacities compared to machine weight are ideal for heavy lift and carry operations in confined areas, and the extendable boom on the L28 provides more options for easy placement of loads, while counterweight options allow the user to customise the capacity to the application. The SALs are built to be light enough for easy transportation.


The L23 small articulated loader.

Image Credit: Bobcat

To ensure the new SALs are truly multi-purpose machines, Bobcat has utilised the company's unmatched expertise in attachments to develop a special version of the proprietary Bob-Tach attachment mounting system, allowing the use of the S70/MT55 and S100/S450 approved attachments.

Designed for groundcare work

In order to not damage surfaces, Bobcat SALs achieve very minimal ground disturbance through the use of an articulated joint, which enables the rear tyres to match the front tyre path when turning, and the turf-safe mode that limits wheel slippage.

Depending on the operating conditions, Bobcat SALs automatically enable one of two traction modes: High-Traction Mode for rough and slippery terrain or Turf-Safe Mode for the least possible ground disturbance.

Practical operation and controls

Bobcat SALs are available with canopy and cab versions, both designed to provide extra space where needed for easy entry and exit, and operator comfort. The controls are intuitive for all levels of operator experience and an enclosed cab and heated seat are available for colder climates.

A simple twin-pedal design on the SALs enables quick and easy direction changes; one pedal moves the machine forward, the other puts it into reverse. These travel controls are easy for operators to master, making the SAL a great choice for seasonal employees or rental customers.

REAL-TIME TECH SUPPORT IN THE FIELD FROM VOLVO CE

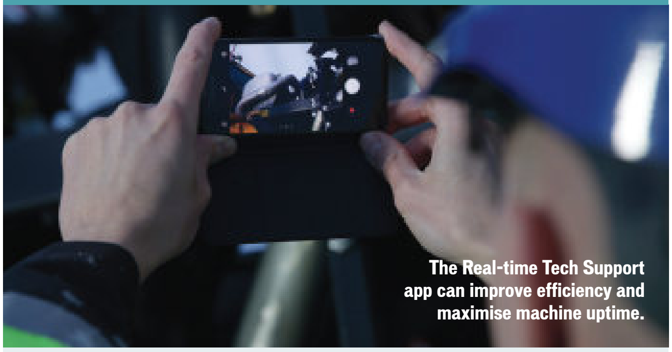
The Real-time Tech Support app can improve efficiency and maximise machine uptime.

Image Credit: Volvo CE

Volvo Construction Equipment (Volvo CE) is offering dealer field technicians the option to communicate directly with Volvo product experts and engineers while on site via a Real-time Tech Support app on their mobile phones.

The augmented reality technology allows all parties involved to see exactly what the field technicians sees and point to components on the screen. Furthermore, these calls can be recorded and saved for reference in case further investigation is required.

"Field technicians can benefit from the expertise of their colleagues as if they were at the customer's site with them. Up to four people can all see and discuss the same component, point to certain things on the screen, make suggestions to try this and that and see the behaviour of the machine in real time. We speed up fault-tracing, minimise travel and get the machine back on the job much sooner," explained Aram Ibrahim, head of uptime support at Volvo CE.

SCIF EXPANDS FLEET WITH LIEBHERR CRANES

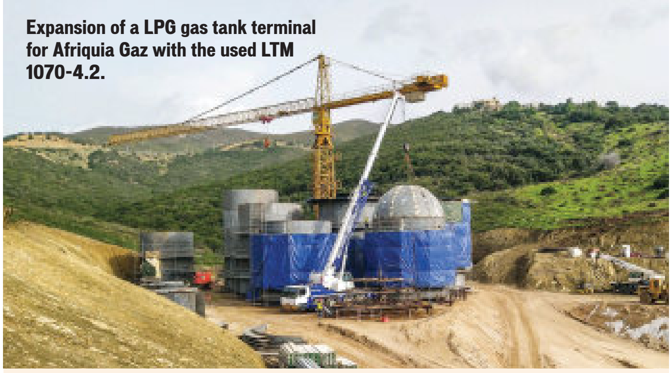
Expansion of a LPG gas tank terminal for Afriquia Gaz with the used LTM 1070-4.2.

Image Credit: Liebherr

Moroccan company Société Chérifienne de Matériel Industriel et Ferroviaire (SCIF), a leading contractor in the fields of construction and industrial plant installation, has expanded its existing fleet of mobile cranes with two LTM 1070-4.2 all-terrain cranes and an LRT 1100-2.1 rough terrain crane. For the LRT 1100-2.1 and one of the two LTM 1070-4.2 models, SCIF decided to buy used machines.

The LRT 1100-2.1 is one of the latest generations of Liebherr rough terrain cranes, which feature particularly high safety standards. For example, the VarioBase variable supporting base is standard. Their excellent off-road handling, pick-and-carry feature and 50m telescopic boom were also major factors behind the purchase.

The boom on the LTM 1070-4.2 is 50m in length. The two compact, flexible 4-axle cranes are also perfect additions to the SCIF mobile crane fleet and will cover around 70% of the load cases SCIF has to tackle.

The Nairobi Expressway.

Image Credit: Mwangi Mumero

Building bridges

Mwangi Mumero explores Kenya's major infrastructure projects that are making a difference to the nation.

With motorists in Nairobi losing US$200,000 annually to traffic jams, the ongoing construction of the 27km Nairobi Expressway is expected to ease transport within one of the largest metropolitan areas in East Africa.

The US$550mn road project is being carried out by the China Road and Bridge Corporation (CRBC) under the Build Operate and Transfer contract with the government of Kenya.

The Chinese firm will build and operate the expressway for 27 years to recoup their investment and then hand it over to the government.

"It will transform the way Nairobi residents move through eased traffic snarl-ups, lost time and revenue. It will also allow vehicles passing through the city from Mombasa to get out of the metropolis faster and easier," observed James Macharia, Kenya's Cabinet Secretary for Transport. The project is one of the numerous public-private partnerships (PPPs) that the government and private entities have invested heavily in over the last couple of years.

Using the expressway, it will take less than 20 minutes to travel from the Jomo Kenyatta International Airport (JKIA) to the city centre – a distance of 16km – which currently takes more than two hours due to massive traffic jams.

CRBC is expected to gain US$1bn in profit over the 27-year period, according to financial experts.

The firm will set up toll stations at various entry and exit point with users being charged between US$1 and US$15 depending on the type of vehicle.

In the fiscal year 2020/21, Kenya has mooted a plan to roll out US$11.4bn worth of projects under the PPP model as the country seeks to wean itself from external debt.

In the last 10 years, public debt has expanded tremendously, leading to an outcry from leading economists and development partners, such as the World Bank and the International Monetary Fund (IMF).

At least 80 projects have been listed as a priority in the national list of PPP projects.

"The projects are in various sectors i.e., transport and infrastructure, energy, health, education, water and environment, housing, tourism, manufacturing, agriculture and livestock," said Ukur Yatani, Kenya Treasury Cabinet Secretary.

Experts note that PPP projects are critical in boosting economic growth without putting too much financial pressure on the government.

"The PPP model helps address the acute mismatch between traffic needs, existing infrastructure and financial deficits," observed Erastus Mwongera, chairman of the board of directors, Kenya National Highways Authority (KeNHA), whose job is overseeing roads projects in the country.

One of the main advantages is that PPPs reduce the burden on taxpayers having to pay for a project, especially when the private sector finances the whole project.

Experts on Kenya's PPP policy note that it provides compensation to foreign investors if the project is terminated, due to political instability or other unavoidable circumstances. The government and the private sector are able to share risks among themselves.

Private investors seem to prefer putting their money for roads and energy projects, most of which are build, operate and transfer contracts.

Other road projects

Another notable road project that is

due to commence is the dualling of the Nairobi-Mombasa Highway, which connects Nairobi to the Port City of Mombasa, located along the Indian Ocean.

The expansion of the 473km Mombasa-Nairobi Highway – part of the East Africa Northern Corridor – has been contracted to Bechtel, a US construction conglomerate.

It will cost US$3bn and include the development of three additional Special Economic Zones next to strategic interchanges, which will bring additional revenue to the national and county governments.

"The route will vastly improve the connectivity, efficiency, and safety of the road between Nairobi and the country's main seaport of Mombasa," said Peter Mundinia, KeNHA director general.

The project is expected to create 500 jobs and will boost local businesses that will supply up to 100,000 tonnes of cement and 40,000 tonnes of steel.

Meanwhile, one of the roads that has helped open up Northern Kenya to trade is the ongoing 143km Modogashe to Habaswein and Samatar road, which cuts through the counties of Isiolo, Wajir and Mandera.

The project is being carried out jointly by Hass Consortium-GVR Infra and the Shandong Hi-Speed Nile Investment Company, which is being supported by the Stanbic Bank of Kenya and the China Exim Bank. It is another OBT contract, and will cost US$150mn when it is completed.

Other major projects set to roll out in the coming days include the Second Nyali Bridge in Mombasa, the expansion of Nairobi-Nakuru-Mau Summit Highway and the operation and maintenance of the Nairobi Bypass road, as well as the busy 40km Thika road.

In the pipeline is the Lamu-Garissa-Isiolo Highway as well as the operation and maintenance for the first three berths of the Lamu Port.

Main boulevards in Konza Smart City.

Image Credit: Konza Techno City Kenya

Energy construction activities

In the energy sector, investors have been seeking deals in various areas, such as wind power and geothermal development.

Perhaps the biggest private investment in the energy sector in Kenya to date is the now complete 310MW Lake Turkana wind project.

Located in Northern Kenya close to Lake Turkana and near the Ethiopia border, the wind farm has 365 wind turbines, each with a capacity of 850kV. The farm also has a high voltage substation.

The wind farm is connected to the national grid at Suswa substation, located around 80km west of Nairobi, through a 428km long double-circuit 400kV transmission line.

The wind farm produces low-cost energy, approximately 17% of Kenya's installed capacity. It has a 20-year power purchase agreement (PPA) to sell power at a fixed price to the Kenya Power company, the main electricity distributor in the country.

The US$858mn wind farm was developed by the Lake Turkana Wind Power (LTWP) consortium, comprising a number of global firms. These include KP&P Africa, Aldwych International, Danish Investment Fund for Developing Countries (IFU), Vestas Wind Systems (Vestas), Finnish Fund for Industrial Cooperation (Finnfund) and Norwegian Investment Fund for Developing Countries (Norfund).

The project was financed through a combination of senior debt (70%), equity (25%) and mezzanine debt (5%).

A number of lenders that include the African Development Bank (AfBD), European Investment Bank (EIB), the Standard Bank of South Africa, Nedbank, FM, Proparco, East African Development Bank, PTA Bank, EKF, Triodos, US Overseas Private Investment Corporation (OIC) and DEG pooled resources for the project.

"The connection to the national grid was a huge milestone for the transformational project. We hope this will inspire investors and government to follow suit and help realise the potential of renewable energy in Africa," observed Mark Davis, executive vice president for clean energy, Norfund.

> "The connection to the national grid was a huge milestone for the transformational project. We hope this will inspire investors to help realise the potential of renewable energy in Africa."
>
> **MARK DAVIS, EXECUTIVE VICE PRESIDENT FOR CLEAN ENERGY, NORFUND**

In further investments in the energy sector, more PPP projects agreements have been signed.

They include the 1,050MW Coal Power Plant in Lamu, Ormat Orpower Geothermal Power plant in Ol Karia and a number of geothermal projects in Menengai, Nakuru County.

Another PPP that has been successfully completed is the National Data Centre at the Konza Technopolis, a smart city being constructed around 40km south-east of Nairobi.

The data centre was constructed by the Huawei company in collaboration with the Ministry of Information and Computer Technology (ICT) and the Konza Technopolis Development Authority. It will support the Platform as a Service (PaaS) and Infrastructure as a Service (IaaS).

"We have the option of having a private cloud alongside a government cloud. With more emphasis being put on the use of technology after the coronavirus period, the storage requirement is going to be of great importance, and the data centre at Konza will solve that particular problem," noted Jerome Ochieng, Permanent Secretary at the Ministry of ICT.

Phase II of the project, that already incorporates the Smart City facilities, will be completed later this year. US$4mn has been set aside in Kenya's budget for the data centre facilities in the Konza City project. ■

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Shifting patterns in infrastructure funding in Africa

Underlying resilience signals the market is down but not out.

Baker McKenzie's latest report – *New Dynamics: Shifting Patterns in Africa's Infrastructure Funding* – analyses new data from IJ Global that shows the state of the African infrastructure market, and how the major global players' approach to infrastructure lending on the continent is changing. While the data shows a decline in the value of infrastructure lending, the region is known for its resilience and it is expected that as economies recover, new types of financing will be unlocked.

The data

The report's data shows that multilateral and bilateral lending into Africa has declined – with investment levels falling successively in 2019 and 2020 compared to peak levels seen after the financial crisis. In 2019, bilateral and multilateral lending into Africa amounted to US$55bn, which drops to US$31bn in 2020. Over the last six years, the decline in lending is significant – deal values dropped from US$100bn in 2014 to US$31bn in 2020.

This slowdown in infrastructure investment was attributable to factors including the pandemic. Economic contraction has affected Nigeria and South Africa, meaning that the region's largest economies have not been feeding in growth as in previous years. However, market fundamentals signal a region with underlying resilience and, as the global economy recovers, finance will be unlocked. There are already positive indicators of forthcoming investment, such as commodity prices are rising and landmark deals are returning. For example, mining multinational Sibanye-Stillwater recently committed ZAR 6.3bn (US$449mn) to South African infrastructure projects.

The data also shows that deal tenor is contracting from a high of 17 years in 2019 to 13 years in 2020. However, the long-term nature of infrastructure projects means that international partners have made lasting commitments to the region, which are unlikely to be abandoned.

China

Surprisingly, given the pandemic, the data shows that lending by Chinese banks into energy and infrastructure projects in sub-Saharan Africa saw a small uplift in 2020, although deal values are well below their 2017 peak. In 2017, Chinese banks lent US$11bn to African infrastructure projects, which decreased to US$4.5bn in 2018, US$2.8bn in 2019 and US$3.3bn in 2020.

Simon Leung, partner, Baker McKenzie Hong Kong, explains, "There has been a slowdown in the number of infrastructure deals from China. In the short-term, we expect to see more targeted lending and new finance options, such as factoring, used to deploy Chinese capital into the region."

International players

It is also clear that other international players have the region in their sights, with key political changes in the USA and UK likely to see capital flow into Africa.

Michael Foundethakis, partner and global head of projects and trade and export finance, Baker McKenzie Paris, notes, "The USA hasn't kept pace with Chinese lending into Africa. The recent change in administration is likely to renew focus on impact-building and financing strategic long-term projects in the region, but bankability and risk-sharing remain a priority for US lenders." Lodewyk Meyer, partner, Baker McKenzie Johannesburg, notes further that, "The infrastructure funding gap is so large and of such strategic importance, it remains necessary to encourage international investment to fill it. African DFIs are very good at collaborating, and I am encouraged by the actions of the new US administration, UK government and New Development Bank, in their willingness to work with regional institutions in this regard. The UK is making a strong play for influence, investment and trade with Africa post-Brexit."

Commercial banks

The report points to infrastructure gaps in energy provision, internet access and transportation that have resulted in an urgent imperative to identify and enable new sources of finance outside traditional lenders and international partners. Further to the expected return of multilateral and bilateral lending, there is room for evolution to bridge the funding-opportunity gap.

The report shows, however, that this vacuum is unlikely to be filled by commercial banks, noting that in 2020, just 84 projects were supported by commercial bank finance, and their involvement in Development Finance Institution (DFI) and Export Credit Agency (ECA) deals continues on a downward trend.

DFIs and new financing solutions

Instead, local and regional banks, specialist infrastructure funds and private equity and debt are stepping in to collaborate with DFIs and access returns. This outlines the deepening DFI involvement in the infrastructure ecosystem, with DFIs increasingly anchoring the infrastructure ecosystem in Africa – serving a critical function for project finance as investment facilitator and a check on capital. This is because they can shoulder political risk and access government protections in a way that others cannot, enter markets others cannot and are uniquely capable of facilitating long-term lending.

The report explains how the amount of capital needed to fill the infrastructure gap is significant, and DFIs cannot bridge it alone. Private equity, debt finance and specialist infrastructure funds are primed to enter the market, and multi-finance and blended solutions are expected to grow in popularity as a way to de-risk deals and support a broader ecosystem of lenders.
Luka Lightfoot, partner, Baker McKenzie London, said, "We expect to see an increase in non-bank activity in Africa in future as a result of new credit mitigation products coming to market. We have seen an increase in appetite from established market participants, such as development banks, to create products that are not tied to existing arrangements that may have limited the type of finance available."

A new era

Lamyaa Gadelhak, partner and co-head of banking, finance and projects at Helmy, Hamza and Partners, Baker McKenzie Cairo, adds, "The pandemic represents the end of an era and the start of a new one. There'll be a re-prioritisation of funds and strategy. I expect to see investments in the healthcare industry and its infrastructure, as well as water projects, to be top priority. We should consider the impact of other factors aside from the pandemic, like the African Continental Free Trade Agreement. I'd expect development of transportation and logistics infrastructure projects to enable the rise of intra-African trade." ■

Renewing existing mixing plants by retrofitting

Working in partnership to renew old technology is the way, according to Benninghoven.

The usual service life of asphalt mixing plants is easily 20-30 years – if not longer. Over this unbelievably long period, a lot can change in the world – requirements on formulas and qualities of mixes, for example, and often the official regulations operators have to comply with in order to get an operating licence. Benninghoven accompanies customers and users through all the challenges of modernisation – with its very own retrofit division.

Teamwork: low-loaders transport the new dryer drum to its final position. The Guggenberger crew and the Benninghoven fitters complement one another perfectly in this process.

Changeable parameters during the working life of an asphalt mixing plant

Customers demand new, higher-quality asphalts which require the plant to have specific dosing options. Legislators tighten up emissions standards. The proportion of RAP fed to the process is increased, reducing raw material costs – but only for operators with the appropriate technology. Dust and noise protection regulations (Germany's "TA-Luft" and "TA-Lärm", for example) required to retain an operating licence are made stricter – often because residential areas expand right up to the asphalt mixing plant which used to be in an isolated position. Alternative fuels are required for the mixing plant burner.

Seven good reasons for a Benninghoven retrofit

1. State of the art: bringing the asphalt mixing plant up to the current state of the art.
2. Protecting your existing site: ensuring that the site retains its operating licence.
3. Sustainability and economy: replacement of components and integration of recycling technologies pay for themselves.
4. Optimisation and efficiency: modern control technology from Benninghoven improves plant performance.
5. Win-win: updating the plant can also be used as an opportunity to satisfy individual requirements – serial production solutions have already been developed from customer ideas.
6. Improve instead of repair: the recommendation from Benninghoven experts will leave plants in a better state after the retrofit than before it.
7. All makes: Benninghoven retrofit solutions are also possible for plants from other manufacturers.

Benninghoven retrofit modernises plants

Retrofit solutions to modernise existing asphalt mixing plants make sense for lots of reasons – and are often more beneficial than investing in new equipment. In densely populated regions, a retrofit may well be more or less the only option, as getting new local authority consent would involve a complex process and the outcome would be uncertain.

When an existing plant is renewed, on the other hand, new consent becomes completely superfluous in many countries. Benninghoven is the partner for mixing plant operators in all retrofit projects – regardless of which manufacturer originally installed the old plant. In the process, customers benefit from the expertise and fairness which characterise Benninghoven.

Complete retrofit solution from a single source

From design to technical implementation to realisation on site: Benninghoven experts from the Wirtgen Group subsidiaries accompany the retrofit process all the way from establishment of contact to final acceptance. They also make direct contact with the main factory. This is of particular value to plant operators, because no two mixing plants are alike. A great many solutions have to be adapted individually or even worked out from scratch to make the plant future-proof. To make sure everything comes together perfectly at the end, the procedure is divided into three steps: development of a joint retrofit plan, technical investigation and implementation at the main Benninghoven factory, and implementation of the new technology on site.

> "A retrofit from Benninghoven is more or less a turnkey solution."
>
> MARKUS BÜHL, AREA SALES MANAGER FOR BENNINGHOVEN PRODUCTS

Approaching retrofit projects with a plan from the outset

Every Benninghoven retrofit project starts with an on-site meeting. A team from the Wirtgen Group subsidiary which looks after the customer visits the customer with proven Benninghoven experts. A written record is made of the plant technology in situ and of all the desired changes, with Benninghoven planning manuals a helpful tool in this process. Photos of the plant and of the components to be renewed are also taken at this initial meeting.

"A retrofit from Benninghoven is more or less a turnkey solution," said Markus Bühl, area sales manager for Benninghoven products at the Wirtgen Group subsidiary in Augsburg.

A commission which supports this statement is the project to retrofit the asphalt mixing plant in Mintraching, owned by Guggenberger GmbH, where the aim was to renew a Benninghoven BA 4000-type plant. The focus in this case was to increase the performance of the plant. ■

Lekela appoints contractor to study potential for Senegal battery storage system

Renewable power generation company Lekela has appointed DNV, an independent expert in assurance and risk management, as a contractor to perform a feasibility study for West Africa's largest grid-scale battery electric storage system (BESS). The study will focus on how to provide increased grid stability and integrate intermittent renewable energy into Senelec's electricity grid. It is being funded through a grant provided by the US Trade and Development Association (USTDA).


Image Credit: Lekela

The battery will be located at Lekela's 158.7MW Parc Eolien Taiba N'Diaye (PETN) project.

The proposed 40MW battery will provide 175MWh of energy, making it one of the largest of its kind in Africa. The battery will be located at Lekela's 158.7MW Parc Eolien Taiba N'Diaye (PETN) project, itself the first utility-scale wind farm in Senegal.

The project will help to stabilise the production of renewable energy, which will soon represent 25% of the total electricity generation capacity in Senegal. It will also provide additional services such as frequency regulation and reactive power support.

When fully charged, the battery will be able to discharge its fully rated 40MW capacity for more than four hours. It will consist of approximately 45 40-ft (21m) shipping containers and will be located adjacent to the wind farm. Senelec, the national utility of Senegal, will dispatch the BESS once it comes online.

Chris Antonopoulos, chief executive of Lekela, said,"It feels incredibly exciting to be progressing on such an innovative project for Senegal. If successful, this battery will further the aim to provide clean, stable power to millions of Senegalese. Access to reliable, affordable energy will be critical to fuelling economic growth and energising a sustainable future for Senegal's people. Lekela is proud to be at the forefront of this and hope to pave the way for further renewable energy growth in Senegal, and across the continent."

DNV will assist Lekela in developing the technical specifications for the BESS to ensure a successful technical solution that will provide services on the grid for its operational life, which may be up to 20 years. Additionally, DNV will be involved in Lekela's negotiation of the offtake agreement with Senelec, which is the first such contract of its type for energy storage in Senegal. It is anticipated that construction of the BESS will begin in 2022.

UAE MINISTER OPENS MEE VIRTUAL EVENT

HE Suhail Al Mazrouei, UAE Minister of Energy and Infrastructure, delivered a welcome speech on the opening day of the Middle East Energy virtual event, reiterating the UAE's commitment to reduce carbon dioxide emissions by 70% and increase clean energy use by 50% by 2050.

"Today, renewables alongside new technologies and services are transforming the business of supplying and delivering power. For this energy transition, a more responsive and interconnected power system is emerging. This changing energy landscape offers new opportunities for both leadership and action," said the minister.

Middle East Energy takes place from 17 May to 9 June, focusing on a different energy industry sector each week. These are renewable and clean energy, transmission and distribution, critical and backup power, and energy consumption and management.

MIDDLE EAST ENERGY: GREEN HYDROGEN

Hosting a session at Middle East Energy 2021 discussing the adoption of green hydrogen, Andre Roscoe, editor of Energy and Utilities at Informa Markets, noted that green hydrogen is generating excitement within the energy industry with governments, utilities, international partners and more, who are seriously considering developing green hydrogen projects in the future.

Joining Roscoe and expanding on this perception, Cornelius Matthes, CEO of Dii Desert Energy, an independent, non-profit, international public-private sector network operating from Dubai, explained that interest in green hydrogen had exploded in the last year due to a combination of factors. The challenge of climate change has been taken up seriously and there is now real action towards accelerating the transition to clean energy and reducing humanity's carbon footprint. Additionally, renewable energy is becoming increasingly lower in cost, which is making the production of green hydrogen a much more viable option.

Continuing, Matthes commented, "Green hydrogen is now considered a necessity. Industries, such as steel and fertilisers cannot electrify easily, so when it comes to massively reducing C02 emissions, green molecules are highly complementary to green electrons (which are obviously a prerequisite). Steel is a low hanging fruit which currently represents 7% of global C02 emissions. Most steel companies have ambitious plans to produce climate neutral steel in the future. One avenue to do this is direct reduction, to substitute things like coal with hydrogen. In a sense, it is a once in a lifetime opportunity. This is unprecedented and there is a huge focus now."

The panellists concluded by noting that collaboration and partnerships would be essential to ensure that this enthusiasm for green hydrogen is converted into projects.

BRIEFS

Middle East and Africa renewable projects favoured

The first private lenders to register at the new Project Finance Exchange (PFX) have shown a clear preference for renewable energy, with the Middle East and Africa as popular as the USA and Europe. More than two decades of evolution and growth has brought the global project finance market to the point where there are now thousands of private lenders and projects at any one time. PFX has introduced a seamless interface between projects and financiers.


Image Credit: Adobe Stock

Private lenders are keen to invest in renewable projects in the Middle East and Africa.

Power-to-fertiliser plant underway in Kenya

Maire Tecnimont S.p.A. has announced that its subsidiaries MET Development, Stamicarbon and NextChem have started work on a renewable power-to-fertiliser plant in Kenya, at the Oserian Two Lakes Industrial Park located 100km north of Nairobi. The project aims to produce 550 metric tons per day of calcium ammonium nitrate and/or NPK fertilisers and will be the first state-of-the-art, commercial-scale nitrate fertiliser plant from renewables.


Image Credit: Adobe Stock

The plant will be partly powered by solar energy.

Water: the essence of life

GENAQ Cumulus C5000 extracts water from air when and where it is needed most, ensuring clean drinking water, even in emergencies.

All living things need water to survive, yet water stress and scarcity put millions of people at risk every year. The challenge is how to transport water to the places it is needed. But GENAQ, based in Spain, focuses on how to use the water already there in the air. Its atmospheric water generators support daily life, industry, and emergency relief. And in the most demanding, extreme, and remote sites, you'll find its GENAQ Cumulus C5000 hard at work – powered by a generator set driven by a PowerTech E John Deere 6.8L engine.

Image Credit: John Deere

The 6.8L John Deere engine offers the reliability and fuel efficiency critical for the emergency situations that require the C5000.

High productivity in extreme conditions

The GENAQ Cumulus C5000 atmospheric water generator has a strong track record supplying clean, drinkable water in disaster-stricken locations around the world. This heavy hitter of GENAQ's emergency response product range can generate up to 5.192 litres (1,372 gallons) of water per day, depending on conditions.

"Large-scale disaster relief, humanitarian relief and defense customers needed a high-productivity solution with a robust structure and an autonomous power supply," said Carlos Garcia, CEO of GENAQ. "We developed the GENAQ Cumulus C5000 to tick all the boxes, it has a double refrigeration circuit, can work with several energy options, and is reliable in extreme environmental conditions of up to 55°C (131°F)."

The C5000 atmospheric water generator includes an air circuit, condensation chamber, water circuit, electrical connections and control, and water treatment. Integrated in a 6m (20ft) container with a 2,000L (528 gallon) tank, it is powered by a generator set that is driven by a 6.8L engine.

Global service offers peace of mind

To power the generator set, GENAQ turned to the John Deere distributor in Spain, Transdiesel S.L.

"Transdiesel guided us in selecting the genset. They provided technical information and advice on how to integrate it into the unit, both physically and electrically, in the container and with the generator respectively. Transdiesel's quick responses and proactivity in providing information have been essential," said Garcia.

The choice of the John Deere 6.8L engine was based on reliability and fuel efficiency – both critical for the emergency situations that require the C5000.

"The engine fulfills our clients' top requirements: efficiency, reliability, and low diesel consumption. And so far, it has been performing perfectly," continued Garcia.

John Deere's global presence provides peace of mind that maintenance and technical assistance are always at hand.

No bottles, no logistics: just safe, drinkable water for all

Water may cover 75% of the Earth's surface, but only 1% of it is drinkable. GENAQ's atmospheric water generators condense water vapour in the atmospheric air using a thermodynamic cycle with mechanical refrigeration technology. Air and water treatments eliminate particles in the air and volatile organic compounds in the water. Depending on the conditions – especially temperature and humidity – and the model, GENAQ's units can produce between 50 and 5,000L (13 and 1,320 gal) of safe, drinkable, storable water per day.

"By combining high efficiency with low energy consumption, our solutions lower the cost per litre of water generated. And the client doesn't have to worry about logistics, waste, or plastic bottles, making our atmospheric water generators a very sustainable choice," described Garcia. "A six-stage process filters the air and water, while ultraviolet technology and mineralisation enable safe storage. Finally, we do exhaustive quality control of our units to guarantee that the water generated meets the most demanding quality standards."

The C5000 has found a strong customer base around the world, including the United Nations, European Commission, and national governments. Today, it is being used in 36 countries: from oil, gas, and mining applications in Malaysia and Chile to the World Youth Days in Panama and atmospheric water bottling plants in France. And, the C5000 will be supplying water at the 2022 World Cup in Qatar.

"By supporting global efforts to ensure people have access to pure drinking water, the C5000 is helping us achieve our goal of creating opportunities for countries and their societies to embark on a new path, free from water stress," added Garcia. ■

> "The John Deere engine fulfils our clients' top requirements: efficiency, reliability, and low diesel consumption."
>
> **CARLOS GARCIA, CEO OF GENAQ**

Renewable energy was at the centre of debate at the Brazil-Africa Institute's energy seminar.

Image Credit: Adobe Stock

Brazil's favelas solar model is example for Africa

The Brazil-Africa Institute's Renewable Energy Seminar was a virtual event that drew together a group of experts to explore the opportunities that exist in this all-important field. Stephen Williams reports.

The renewable energy seminar was the latest initiative of the Brazil-Africa Institute that seeks to further cooperation between the country and the continent.

Energy is an essential prerequisite for economic and social development, yet needs to be renewable in nature to avoid the emissions of greenhouse gases adding to the global warming phenomena.

A senior contributor to the seminar was Eluma Obibuaku, senior vice president and head of power at the Africa Finance Corporation (AFC). The AFC is focused on Africa's infrastructure. Established in 2007, the corporation has been focused on financing the closing of the continent's infrastructure gap with private-sector type investments.

Obibuaku clarified that the AFC will bring all types of investment to the power, oil and gas, and natural resources sectors, including mining and heavy industries.

Members of the AFC total 27 countries

"The important thing to keep in mind is that our investments are essentially throughout Africa, whether the countries are members or not. We're an investment grade institution, one of the few on the continent, with a balance sheet today of US$7.2bn.

"Africa is far from where it needs to be with only about 55% energy access. The World Bank's Energy Progress Report, published, I believe, in 2019, said that by 2030, there will be 680 million people worldwide without access to electricity, and 90% of that number will be in sub-Saharan Africa. So the challenge for us is significant."

However, as Obibuaku pointed out, the cost of renewable energy, be it for wind or solar has been falling for the past 10 to 12 years. That is creating an opportunity to help fill the energy gap. When you include thermal and hydro resources, many African countries have a path to solving the problems.

Even so, there are challenges. Obibuaku says that financial resources play a role, but argues that in a lot of African countries, the correct regulatory environment is lacking to attract private financing for first generation assets.

"We need to make adjustments to tariffs, to introduce cost-reflective tariffs. Very few countries on the continent have tariffs that permit you to make investments. One exception is possibly Ivory Coast, where you have the regulatory environment that allows the private sector to participate and provide viable investments in electricity so that you can drive funding to this area to help close the deficit."

It is clear that public funding is simply not enough and is unable to drive the investment that is required.

"There are certain things that we can do to drive the finance needed. And this will have a knock-on effect in terms of other aspects of economic growth. Realistic cost-reflective tariffs are important, allowing two sets of funding to come in; one is funding in the form of debt and the other is equity.

"Both the regulatory climate, as well as the business climate in a country will encourage investors. They require appropriate protection from government to allow them to take on investments. That includes foreign currency devaluation issues – i.e. compensation for exchange rate changes that are not driven by the operations of the business."

As Obibuaku makes clear, the AFC has a portfolio of projects in Africa that illustrates just how diverse the corporation's interests are. They include the CenPower project in Ghana, a 350MW power station utilising combined cycle gas turbine technology; the Cabeolica wind-power farm in Cape Verde; Gisagara Thermal Power Station under construction in Rwanda (using peat as its fuel stock); and the clean-coal eco-friendly Maamba project in Zambia.

> "Africa is far from where it needs to be with only about 55% energy access."
>
> ELUMA OBIBUAKU, SENIOR VICE PRESIDENT AND HEAD OF POWER AT THE AFRICA FINANCE CORPORATION

A Brazilian initiative

Brazil currently has around 46% of its energy matrix made up of renewable sources, and 83% of its electricity is derived from hydroelectric plants, bioenergy, solar panels, wind turbines and geothermal stations.

But energy poverty is a persistent problem, reflecting the inequalities in Brazilian society in general. Urban centres invariably include favelas (low income areas).

Eduardo Ávila is the CEO at Revolusolar, a Brazilian SME initiative that develops solar in Brazil's many favelas. Ávila told the seminar RevoluSolar's results have been highly encouraging. RevoluSolar's business model is to operate as a community-based non-profit organisation that produces and manages renewable energy in the communities of Morro da Babilônia and Chapéu-Mangueira, favelas in Rio de Janeiro.

The issue of a heavy initial capital expenditure has been mitigated as RevoluSolar has already benefited from three funding opportunities from the CASA Socio-Environmental Fund and received grants from the Heinrich Böll Foundation and the European Federation of Renewable Energy Cooperatives. For residents of the favelas, repaying the initial cost of solar has been less expensive than buying electricity from Brazil's power utility.

The opportunity to adopt RevoluSolar's renewable energy model for Africa's low-income urban areas is obvious, and would have benefits for health and education. ■

Solar: the continent strides towards sustainability

As some of Africa's most expansive solar energy projects take form, solar is playing a crucial role in innovative energy solutions on and off the grid. Matthew Hayhoe reports.

The US$4bn Benban park is one of the continent's most ambitious solar projects.

Image credit: Scatec

Great strides are being made across Africa as power companies help to expand the continent's energy mix. Solar energy looks to be a key contributor in this regard, with a number of projects taking shape that look to not only feed into the continent's grid but offer alternative off-grid solutions for future generations.

Benban Solar Park

One noteworthy project is the Benban Solar Park, in the Aswan governorate, Egypt. The project is the fourth largest photovoltaic plant in the world, with a total capacity of 1,650 MWp.

With an estimated prevention of 2 million tonnes of carbon dioxide emissions a year, Benban Solar Park is likely to be pivotal to Egypt's 'Nubian Suns Renewable Energy Feed-in Tariff' programme, announced in September 2014, which aligns with the Egyptian government's Sustainable Energy Strategy 2035 to source 20% of electricity from renewable sources by 2022, and 42% by 2035.

The expansive 37.2 sq km site hosts 41 different solar power plants, with individual plots ranging from 0.3 sq km to 1 sq km in size. Arranged in arrays, the photovoltaic (PV) panels are fixed to immovable frames, which are then connected to inverters before being transferred by a transformer to the nearby power grid for distribution and consumption.

SunBrush mobile, a specialist in solar cleaning equipment, which worked alongside Infinity, the solar project developer, will service and maintain a number of the project's PV panels.

Scatec Solar and partners were responsible for the last six of the 41 grid-connected solar plants, completing the 390MW project.

Of their role in the success of the Benban project, Mohamed Amer, Scatec's general manager, explained, "The Benban solar park serves as the foundation for developing large scale renewable energy in Egypt. It is a monumental project with significant impact. For instance, Scatec's 380 MW capacity at Benban solar park powers more than 420,000 households and avoids 423,000 tonnes of CO2 annually. Our long-term integrated approach has proved a successful formula here."

> "The achievements at Benban contribute to reducing risk and support the case for many renewable projects in Egypt and the region in the time to come."
>
> **MOHAMED AMER, GENERAL MANAGER, SCATEC**

The future looks bright for Benban and other renewable projects across Egypt and Africa in general, with Amer adding, "We worked in partnership with the authorities, other developers, co-investors, communities and development finance onstitutions to establish the Feed in Tariff programme as the foundation for a solar PV industry in Egypt.

"The achievements at Benban contribute to reducing risk and support the case for many renewable projects in Egypt and the region in the time to come. Egypt's success in attracting international investors to Benban and accelerating its renewable energy policy can also serve as an inspiration to others."

Winch Energy's mini-grid portfolio

While expansive projects such as the Benban Solar Park contribute greatly in Africa's journey towards sustainability, localised projects have the opportunity to make an equal amount of impact, with Winch Energy's recent closure of the largest limited recourse mini-grid portfolio in Uganda and Sierra Leone proving just that.

The creation of a new platform, Winch Energy IPP Holdings Limited (WIPP), will help off-grid utilities provider Winch Energy to fund solar mini-grid projects in 49 villages across Uganda and Sierra Leone.

The mini-grid projects will use Winch Energy's proprietary technology, the Remote Power Unit, and will be operational within the next 12 months. This US$16mn development will supply clean energy to the Lamwo district of Uganda and the Tonkolili, Koinadugu and Bombali districts of Sierra Leone for the first time, reaching over 60,000 users.

The investment vehicle (WIPP) relies on investment from Winch Energy Limited in partnership with NEoT Offgrid Africa, a platform established by Merdiam, EDF and Mitsubishi Corporation.

Of the localised impact of the project, Nicholas Wrigley, CEO at Winch Energy Ltd., explained, "The projects in Sierra Leone were designed to connect the local health centres and then the rest of the village – so the health impact is very significant. During the Covid-19 pandemic, we have electrified a further 12 community health centres, giving them free power to ensure patients and healthcare professionals can reliably access clean water, lighting and specialist equipment including ventilators.

"We now supply clean, affordable energy to over 40,000 people and, through partnerships with EasySolar and Orange, they can also access telecoms and mobile money services. Our customer surveys indicate that more than 50% of local women claim that their incomes have increased as a result of electrification."

Winch Energy is set to install a further 6,000 portable batteries throughout the project, supplying those outside of the mini-grid catchment area with electricity.

The Uganda and Sierra Leone projects are not the end of the new WIPP platform, however, with Wrigley continuing, "The platform enables Winch Energy to fund a very significant number of additional projects with debt and equity investors already in place. So far we have funded the connection of 50 towns and villages, and the new platform will allow us to do around 450 more. Not only does this help us to rapidly scale up operations in Africa but it positions us as a leader in large-scale off-grid renewables.

> "We now supply clean, affordable energy to over 40,000 people and, with EasySolar and Orange, they can also access telecoms and mobile money services."
>
> **NICHOLAS WRIGLEY, CEO, WINCH ENERGY**

"Our projects operate exclusively with solar and battery storage. So we are helping to substitute clean power for kerosene and diesel alternatives, along with wood/charcoal burning and waste disposal of dry batteries."

Desert Technologies

With only 36% of its rural population having access to electricity, it is no surprise that Nigeria is targeting solar development progress.

Saudi solar firm Desert Technologies has revealed plans to provide large-scale financing to village electrification projects during a conference event titled: 'Renpower Nigeria Investors 2021', which ran from 31 March to 1 April, 2021.

"Desert Technologies is an independent PV solar energy platform with a proven track record as a PV developer, investor, EPC and operation and maintenance contractor, and PV solar panel and energy storage solutions manufacturer," explained Nour Mousa, founder and CEO of Desert Technologies (DT).

Similarly to Winch Energy's localised targets and focus on off-grid projects, Mousa explained that Desert Technologies will respond to the critical need for micro-grid and off-grid solutions in the rural communities across Nigeria and other sub-Saharan African markets.

To meet this demand, DT has developed Sahara, an off-grid solution designed to grant sustainable access to electricity in remote or rural areas. Sahara is a containerised solar generator, with a plug-and-play, stand-alone system, which makes it incredibly versatile and agile for use in remote areas.

"With the Sahara series, we are looking at a levelised cost of electricity at about 11 cUSD /kWh provided by the hybrid system, which is already half of what diesel is today. DT is planning to provide finance at a large scale and electrify villages in the sub-Saharan region," Mousa added.

With a range of localised and expansive projects taking shape, the future of solar energy across Africa looks bright. ■

Image Credit: Winch Energy

Winch Energy is installing its proprietary unit, the Remote Power Unit, at a number of localised mini-grid projects across Africa.

Reliable spares supply

Africa depends on generators as a source of reliable power, in some regions almost as much as grid electricity. But millions of generators themselves rely on an efficient service support and spares' supply chain if their delivery of reliable power is to be maintained.

Image Credit: Siemens Energy

Siemens Energy is growing and training its network of service partners in those African countries where it has, as yet, no strong, local presence. Pictured: Wadeville Service Facility SA.

Africa is growing fast, for which reliable power is essential. However, 'reliable grid power' remains a contradiction in African terms, hence millions of generators are needed to support that growth; but the need for reliable power to keep lights on, production lines moving, and mineshafts ventilated, places huge demands on generating equipment, making effective service and spares' supply chains, essential.

Many OEMs such as Caterpillar, Cummins, FPT Iveco, Honda, Perkins, Volvo Penta, and Yamaha supply customers across Africa using dealers such as the UK's Advanced Diesel Engineering. In April, for example, they supplied a Cummins 2250 kVA Standby Diesel Generator, fuel system and other equipment to a data centre in Egypt. Such dealers and OEMs have spares and representative networks in country, so customers remain supported in any eventuality. For African Review, Tim Guest spoke with a handful of leading power-generating OEMs about their spare part supply to African customers.

Siemens Energy

Siemens Energy largely deals directly with African customers when supplying spares, often using accredited distributors such as FedEx or DHL. Its vice president service & digital, Southern & Eastern Africa, Daniel Taylor, said of service support and spare parts' supply challenges, that getting qualified, skilled technicians to where they need to be, when they need to be there, particularly at short notice, had been especially challenging during the pandemic, although these challenges had been overcome.

> "We have been able to route our highly trained employees from Nigeria to where they are needed in Africa."
>
> **DANIEL TAYLOR, VICE PRESIDENT SERVICE & DIGITAL, SOUTHERN & EASTERN AFRICA**

"Recently, we have been able to route our highly trained employees from Nigeria to where they are needed in Africa, whereas European technicians might previously have been used. We're also employing digitalisation more frequently, including virtual reality and augmented reality headsets, Image Credit: Caterpillar

A Caterpillar consignment stock and parts warehouse. Cat dealers keep an inventory of fast-moving and critical components for urgent service needs and sometimes place consignment stock at customer sites to reduce equipment downtime.

enabling technicians on different continents to guide and perform remote inspections, approvals, servicing and maintenance work, and we're expanding regional capabilities, enabling improved local customer support."

Taylor said different countries and regions present different challenges depending on supply chain and logistics route complexity, and the contract types Siemens has with customers. The process of getting spares and receiving customs clearance for spares varies, country to country. Challenges, he said, are, therefore, not the same. Concerning the range of spares needed urgently, Taylor said, "This depends on the type of equipment and, again, service agreement with the customer. There's a diverse list of equipment ranging from, but not limited to, rotors, bearings, oil seals, steam bushings/seals, control valve parts, bearing temperature probes and more. We often supply customers with a list of recommended spares, and lead-time expectations, to ensure they're prepared."

Of the latest developments to the Siemens Energy spares' supply chain, Taylor said, "We're growing and training our network of service partners in African countries where we have no strong local presence, particularly West and Central Africa. These companies need to fulfil certain local content requirements, meaning we leverage strong local knowledge, upskill local workforces, and contribute directly to local economies; this ensures customers receive fast access to local and regional qualified technicians, when needed."

Volvo Penta

Volvo Penta supplies customers across Africa, and its director importer aftermarket business, region international, Peter Grundberg, said of the challenges faced delivering spares, "In countries where the company has no representation, parts sometimes get stuck in local customs, depending on local laws and regulations." Geopolitics can also sometimes play a part, although "most often in countries where, again, Volvo Penta does not have an official importer".

Of the spares that might be needed urgently during the lifetime of a Volvo Penta power plant, Grundberg said, "It varies a lot depending on application and operating conditions. Mining industry users often require swing engines to avoid downtime plus overhaul kits; for powerplants, control units and overhaul kits are often needed and spares for the complete fuel system, e.g. pre-filter to injectors and fuel pumps."

SMT, who handles these issues on a daily basis, is Volvo Penta's importer in most of Western Africa including Morocco, Ghana, Senegal, DCR, Congo Brazzavile, Algeria, Ivory Coast and Nigeria. SMT's Volvo Penta brand director, Abdelhadi El Mejdoubi, said, "When we receive a request for

Image credit: Volvo Penta/SMT

SMT Benin facility in Cotonou. Gensets are assembled by its partner Khonaysser in Lebanon, with the TAD531GE of 100KVA gensets pictured awaiting delivery to end customers. SMT promotes Volvo Penta's genset business, with hundreds of service contracts for 24/7 maintenance and repair. The Volvo truck pictured is equipped with a crane and used to transport the gensets to customer sites or to SMT workshops if a major repair/overhaul is needed.

urgent parts we normally check in our stock in that country. We usually have on hand all fast-moving parts and also the initial stocking recommendation, which includes critical parts. In the case of part unavailability, we check inventory in neighbouring SMT countries. If no, we place an urgent order with our central warehouse in Belgium, which may take days or weeks, depending on bureaucracy of customs and regulations of every country."

Grundberg added, "Along with SMT, the company uses its own distribution network and does not sell directly to end customers; Orascom represents us in Egypt, and NECST in Tanzania and Kenya, for example. Some large OEMs distribute spare parts to their customers, but we do not sell directly, with very few exceptions." He added that Volvo Penta expects to add several countries in Africa to its distribution network in the coming years.

Caterpillar

Caterpillar currently has 13 Cat dealers with some 15,000 employees covering 52 African countries.

Andrew Haroun, electric power aftermarket manager for Caterpillar Inc, said of service and spares' challenges, "One of the common challenges of parts' delivery and service in Africa is reaching remote areas. Algeria alone is 2.4 million sq km, roughly a quarter the size of the US, which makes remote location coverage costly. Cat dealers keep an inventory of critical components for urgent service needs and we've also, with our dealers, increased connected capabilities to monitor asset health and automate alerts for efficient, timely maintenance."

He said parts' delivery is subject to constraints such as geopolitics, legislation and customs, and while not specific to Africa, the lack of uniformity in marketplace standards heightens challenges faced.

"Cat dealers play a critical role navigating supply chain regulation complexities," Haroun continued, "and deploying industry-leading strategies to mitigate impacts on customers. Examples include the placement of consignment stock at customer sites to reduce equipment downtime, as well as the Cat Integrated Procurement System, which enables customers to order parts through their procurement systems using features such as automatic stock replenishment."

When a customer first contacts the distributor network for an urgent spare part, Cat dealers fulfil orders through their systems built to Caterpillar service standards.

"Parts requests can come via offline and online channels, including dealer branches, customer representatives, websites, and social media. For example, Mantrac, the Cat dealer in Uganda, started dispatching technicians on motorcycles to urban customer sites, including hospitals where every minute of downtime counts. The system has reduced response times up to 80%."

The developments enhancing Caterpillar's parts' supply to African customers include opening two Cat distribution centres covering exclusively African countries, as well as deployment of Cat stock optimisation systems and parts replenishment based on historical data. "During the pandemic, Parts.cat.com, our e-commerce platform, has seen increased adoption by customers. Caterpillar has invested in Component Rebuild Centres, and we're testing innovative distribution, such as parts delivery using drones." ■

> "One of the common challenges of parts' delivery and service in Africa is reaching remote areas."
>
> **ANDREW HAROUN, ELECTRIC POWER AFTERMARKET MANAGER FOR CATERPILLAR**

Image Credit: Caterpillar

The need for reliable power to keep lights on, production lines moving, and mine shafts ventilated, places huge demands on generating equipment, making effective service and spares' supply chains essential.

KOHLER REVEALS DURABLE STEEL GENERATOR CANOPY

Power systems supplier Kohler has launched its M139 generator canopy. It offers the highest levels of anti-corrosion performance, making it suitable for use in harsh outdoor environments in markets, such as Africa and the Middle East. The M139 integrates powers from 165 kVA to 250 kVA. It completes the redesign of canopies for Kohler's industrial range, with the previously released M137 and M138 covering 22 to 130 kVA.

The canopy is made from aluminium-zinc coated steel, which provides superior protection against corrosion compared with standard galvanised steel. Tests at the French Corrosion Institute near Kohler's headquarters in Brest, France, showed that the M139 continued to provide resistance up to 1,500 hours in a climatic chamber under salt spray conditions.

The design of the M139 has also resulted in the removal of certain welds, eliminating water traps that can accelerate the spread of rust.

"The M139 canopy integrates generators for prime and back-up electricity production in global markets, and it will find application in a broad range of small industry and retail settings," said Kevin Bougault, product manager, small diesel range at Kohler.

Other design advantages include grooved sheets to provide additional structural solidity of the canopy, therefore reducing vibration. The M139 also comes with a chamfered roof and plastic finishing on the corners, providing additional protection.

"Durability was a crucial factor from the outset," said Bougault.

Volvo Penta targets e-mobility innovation

Most manufacturers are skilled at implementing an internal combustion engine into a driveline, but developing a wholly electric driveline is a completely different scenario. To gain a deeper understanding of the challenging journey that Original Equipment Manufacturers (OEMs) must embark upon, Volvo Penta acquired a terminal tractor – a viable product line for electrification – and proceeded to begin with the conversion to an electric driveline in 2015.

The tractor was initially run with its existing diesel driveline, with its performance monitored to provide a baseline for future developments. It was then rebuilt in the diesel-electric parallel hybrid configuration used in Volvo's hybrid buses.

Simulations of different drive cycles were performed on this diesel-electric parallel hybrid version of this tractor. This testing eventually confirmed a 30% increase in efficiency over a typical operation cycle.

The tractor was then converted to fully electric, using electromobility technology from the Volvo Group, namely the batteries and a pair of electric motors connected to the gearbox. The packaging solution of the driveline was also adapted to the terminal tractor design to accommodate space restrictions.

The tractor with the electric driveline was first exhibited at TOC 2019, and the following year, Austrian OEM Rosenbauer announced that it would be using it in its forthcoming municipal fire truck, RT Revolutionary Technology. This electric fire truck was purpose-built to take advantage of the new technology, enabling major enhancements in terms of lowering its centre of gravity and improving access for firefighters carrying heavy equipment. Once Rosenbauer's electric fire truck goes into production this year, the terminal tractor will continue to play a key role as a test platform for Volvo Penta to adapt its electromobility portfolio to future vehicle partnerships.

Hitachi Construction Machinery and ABB sign MoU to achieve net-zero emissions

Hitachi Construction Machinery Co., Ltd has signed a Memorandum of Understanding (MoU) with ABB Ltd to explore opportunities for mine operators to target net-zero emissions from mining machinery.

This MoU will allow Hitachi Construction Machinery and ABB to share their expertise and collaborate in bringing solutions to market that will reduce the greenhouse gas (GHG) emissions associated with heavy machinery in mining.

The companies will explore opportunities to apply ABB's electrification, automation and digital solutions to mining trucks and excavators provided by Hitachi Construction Machinery, leveraging both companies' advanced engineering technologies. The aim of the combined solutions is to enhance the efficiency and flexibility of customer businesses, contributing to the reduction of CO2 and the realisation of a sustainable society.

Image Credit: Adobe Stock

Hitachi Construction Machinery and ABB will collaborate to bring solutions to market that will reduce the greenhouse gas emissions associated with heavy mining machinery.

Sonosuke Ishii, senior vice president and executive officer at Hitachi Construction Machinery, said, "The majority of mining operations worldwide remain energy intensive, with many of the current industrial processes producing significant greenhouse gas emissions. Climate change continues to impact society and communities. It is our vision through this commercial collaboration to provide solutions that can reduce our customers' environmental footprint. We are delighted to be collaborating with ABB as we continue to invest our efforts in introducing eco-friendly technologies and systems for the mining industry."

ABB has more than 130 years of experience in the mining industry and delivers complete electrification, automation and digital solutions, industry-specific products and lifecycle services across every stage of the mining cycle. ABB's digital applications draw on advanced libraries and software solutions to reduce process complexity and can integrate with existing equipment and technology. ABB Ability MineOptimize is a digitalised portfolio of connected solutions that is already improving the energy efficiency as well as productivity and optimisation of CAPEX and OPEX of open pit and underground mines worldwide.

RESULTS OF PLACING FOR AFRITIN MINING

AfriTin Mining, an African tin mining company with its flagship asset, the Uis Tin Mine (Uis) in Namibia, was pleased to announce the successful completion of the placing via accelerated bookbuild.

The placing involved 216,666,667 ordinary shares at a price of six pence per ordinary share to raise £13mn (US$18mn) and the price of six pence representing a discount of 12.5% to the closing price on 11 May, 2021.

Anthony Viljoen, CEO of AfriTin Mining, said, "We are very pleased to announce today's oversubscribed placing which puts the company into a position to expedite the phase 1 expansion of our flagship Uis Tin Mine in Namibia at a time of unprecedented high tin prices. The proceeds also allow us to further investigate the exciting, significant lithium and tantalum by-product potential we have across our extensive resource base, and further exploration on our regional assets."

CATERPILLAR SURPASSES THREE BILLION TONNES

Caterpillar has announced an additional one billion tonnes of material hauled by autonomous trucks using Cat MineStar Command – surpassing the three billion tonnes milestone. This achievement is joined by an expansion of the types of commodities hauled autonomously across a growing number of Cat mining truck class sizes, as well as other brands of mining equipment.

"Since surpassing the two billion tonnes milestone, we've equipped more mines with Command trucks and established the world's first gold mining application with Command for hauling," said Jim Hawkins, director of Cat MineStar Solutions. "Since surpassing one billion tonnes, we've expanded our Command fleet by nearly 250%."

Caterpillar has Command autonomous haulage system (AHS) fleets operating across three continents – North America, South America and Australia – at 17 mine locations, operated by nine different customers. Commodities mined using the Cat Command include iron ore, oil sands, copper, coal and gold.

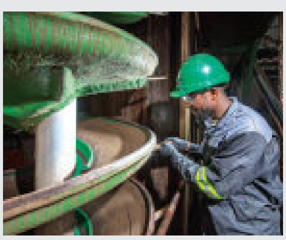
Command for hauling trucks now span class sizes from 190 to 360 tonnes (210 to 400 tons). The Cat line of Command models include the Cat 789D, 793D, 793F, 797F and the 297-tonne (327-ton) 794 AC with electric drive. Command retrofit kits are available for Cat mining trucks as well as other brands of trucks and loading equipment. Since the first autonomous Cat trucks were commissioned in 2013, these AHS models have traveled more than 110 million km, equivalent to a minimum distance, straight-line roundtrip journey to Mars, with no lost-time injuries associated with automated truck operation.

Customers using Command for hauling report significant gains in productivity and truck utilisation rates with lower costs per tonne. Customers have seen up to 30% higher productivity.

BRIEFS

Multotec's new spiral for retreating ultra-fines

Image Credit: Multotec



Multotec's new UX7 spiral for retreating ultra-fines.

Multotec has taken another innovative step to help customers recover their valuable ultra-fine material so that it does not go to waste. As a leading manufacturer of spiral concentrators, Multotec has released its UX7 spiral, which focuses on recovering material in the particle size range of 75 microns and smaller. The firm says the success of the Multotec UX7 is based on in-house test work, leading to 13% better recovery.

Cavex retrofits boost mine efficiency

Image Credit: Weir Minerals Africa

The Cavex 400CVX10 hydrocyclone cluster installed at a fluorspar operation.

Weir Minerals' Cavex classification hydrocyclones have added value to two more African mines, one is a gold mining operation and the other is a fluorspar mine. Following the retrofitting of two Cavex 700CVX13 hydrocyclones by Weir Minerals Africa, one of Ghana's lowest-cost surface gold miners reported a 70% improvement in classification efficiency. There was 50% longer wear life on the liners compared to other competitive cyclones.

Clean energy demand for critical minerals will soar as the world pursues net zero goals

Supplies of critical minerals essential for key clean energy technologies, such as electric vehicles and wind turbines, need to pick up sharply over the coming decades to meet the world's climate goals, creating potential energy security hazards that governments must act now to address, according to a new report by the International Energy Agency (IEA).

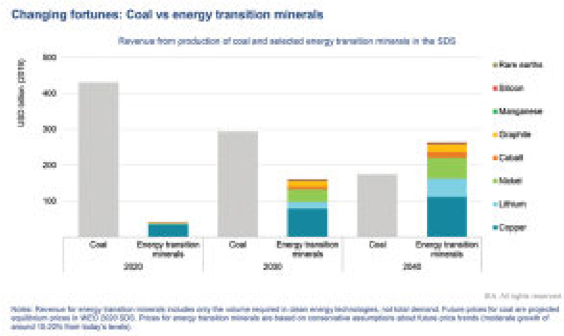


Image Credit: IEA

The special report, *The Role of Critical Minerals in Clean Energy Transitions*, is the most comprehensive global study to date on the central importance of minerals, such as copper, lithium, nickel, cobalt and rare earth elements in a secure and rapid transformation of the global energy sector. Building on the IEA's longstanding leadership role in energy security, the report recommends six main areas of action for policy makers to ensure that critical minerals enable an accelerated transition to clean energy rather than becoming a bottleneck.

"Today, the data shows a looming mismatch between the world's strengthened climate ambitions and the availability of critical minerals that are essential to realising those ambitions," said Fatih Birol, executive director of the IEA. "The challenges are not insurmountable, but governments must give clear signals about how they plan to turn their climate pledges into action. By acting now and acting together, they can significantly reduce the risks of price volatility and supply disruptions."

"Left unaddressed, these potential vulnerabilities could make global progress towards a clean energy future slower and more costly – and therefore hamper international efforts to tackle climate change," Birol added, "This is what energy security looks like in the 21st century, and the IEA is fully committed to helping governments ensure that these hazards don't derail the global drive to accelerate energy transitions."

The special report, part of the IEA's flagship World Energy Outlook series, underscores that the mineral requirements of an energy system powered by clean energy technologies differ profoundly from one that runs on fossil fuels. A typical electric car requires six times the mineral inputs of a conventional car, and an onshore wind plant requires nine times more mineral resources than a similarly sized gas-fired power plant.

Demand outlooks and supply vulnerabilities vary widely by mineral, but the energy sector's overall needs for critical minerals could increase by as much as six times by 2040, depending on how rapidly governments act to reduce emissions. Not only is this a massive increase in absolute terms, but as the costs of technologies fall, mineral inputs will account for an increasingly important part of the value of key components, making their overall costs more vulnerable to potential mineral price swings.

The commercial importance of these minerals is also growing rapidly: today's revenue from coal production is ten times larger than from energy transition minerals. However, in climate-driven scenarios, these positions are reversed well before 2040.

To produce the report, the IEA built on its detailed, technology-rich energy modelling tools to establish a unique database showing future mineral requirements under varying scenarios that span a range of levels of climate action and 11 different technology evolution pathways.

THE FUTURE OF MINING IS SUSTAINABILITY

Sustainability was the key theme in Hogan Lovells' annual Future of Mining Report.

The global law firm, in partnership with Africa Legal, raised awareness of the core issues affecting the future of the mining sector in the report.

It found that two-thirds of mining companies are pursuing community impact programmes – focusing on areas such as jobs, transport and clean water – as part of their sustainability policies. Waste management was equally prioritised, followed by employee wellbeing, according to 57% of respondents (including aspects such as medical health and health and safety in the workplace), and 55% were pursuing local education and skills training.

Transition to renewables in the mining industry has so far been slow to pick up. The impact on local communities has been prioritised over renewable energy in Africa as the continent remains underdeveloped and improving the communities where mining companies operate is often integral to obtaining mining permits.

Mining is an energy-intensive industry, and companies need a reliable power supply that presents a challenge with types of renewables, delaying widespread uptake. 28% of respondents said their company had targets around renewable energy. Mining companies recognise the importance of greener energy to achieving greater sustainability in the African mining industry. When respondents were asked to rank their top three sustainability areas for intensified focus, increased renewable energy utilisation ranked highest, followed by net carbon reduction and greater adherence to ESG standards. The report considers why community impact and employee wellbeing remain critical for any mining operation, and why human rights is core to an effective sustainability policy.

BRIEFS

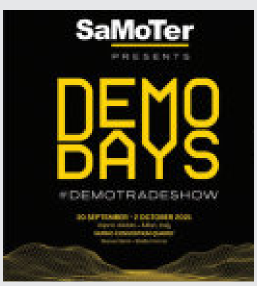


Image Credit: SaMoTer

SaMoTer Demo Days will be held on 30 September-2 October.

Samoter Demo Days 2021

Veronafiere's international exhibition dedicated to construction machinery has launched a new live event in 2021 for Italy with SaMoTer Demo Days – Outdoor Edition on 30 September-2 October. Professionals will be able to see vehicles, equipment and earthmoving, construction site and building machinery in action and field tests. The event is scheduled in the quarry operated by the Vaprio Consortium, Nuova Demi – Stella Imm.re, in Vaprio d'Adda, in the province of Milan, Italy.

Time for hybrid: Metso Outotec Lokotrack e-Power range

Image Credit: Metso Outotec

Metso Outotec Lokotrack e-Power range.

Metso Outotec has introduced the Lokotrack e-Power range, bringing the diesel-electric Lokotrack mobile crushing and screening units into one, distinctive offering. The range includes 15 crushers and six screens, making it the market's broadest portfolio of hybrid mobile crushing and screening equipment. "We introduced the first Lokotrack E-models already 35 years ago, so we are one of the pioneers in this field," said Kimmo Anttila, VP, Lokotrack solutions at Metso Outotec.

Mining Smart Insight: The tech transforming the sector

Allied Market Research estimates that the global smart mining industry is projected to reach US$24bn by 2027. Matthew Margetts, director of sales and marketing at Smarter Technologies, shares how companies need to position themselves to stop them falling behind their competitors.

Image Credit: Adobe Stock

Autonomous mining systems are the future.

Digital technology has become a key enabler of margin improvement and an enhancer of competitiveness in the mining sector. Although the majority of the top mining businesses have already started their digital journey in some capacity, many of the smaller players are lagging behind when it comes to digital transformation.

As a traditionally risk-averse industry, many mining sector stakeholders struggle to invest in new technologies without a guaranteed return on investment (ROI). This article highlights how innovative mines are using new technologies to make mining operations safer, more productive, and more cost-efficient.

Keeping your workforce safe

Mines are often dangerous places to work, and worker health and safety are top priorities for mining operations. Smart mining technology has the potential to improve mine safety in several ways.

Automation

Autonomous mining vehicles have been around for nearly two decades. During this time, these vehicles have revolutionised mining by allowing humans to communicate with and control machinery remotely. In this day and age, the focus has shifted from the original autonomous mining vehicles to autonomous mining systems, which can carry out a series of integrated tasks automatically. Removing the need for humans to be onsite increases workforce safety.

The benefits of autonomous mining functions include:

- Improved safety
- Decreased incidents
- The ability to work in areas that would be too dangerous for humans
- Increased productivity (seeing as equipment can move faster and cover longer distances than humans)
- Reduced labour costs.

Predictive analysis and insights

When mining assets are connected to the Internet of Things (IoT) and a central management system, this enables operational intelligence. By analysing operational data, mining operators are better equipped to foresee and prevent any dangerous incidents from occurring. The ability to conduct predictive maintenance also means a lower risk of mechanical breakdown and failure.

Personnel tracking

Wearable technologies have become more advanced and non-invasive, making it easier to track the mining workforce, even deep underground and in remote locations. With real-time visibility of all staff, key workers can be located instantly. In the event of an emergency, response times and recovery rates are significantly improved.

Along with improved safety, workforce tracking data can also be used to monitor staff attendance and identify where productivity can be increased.

Condition monitoring

A series of smart sensors can measure virtually anything – from pressure to humidity, temperature, air quality, gas levels, sound and more. If the conditions in a specific area change in any predefined way, instant notifications can alert teams of potential safety risks and potentially prevent incidents before they occur.

Increase efficiency and reduce operational costs

Making mines "smart" has the effect of lowering operational costs. In a smart mine, key assets are digitised by embedding smart sensors that report data to a central system via a wireless network. Many of the same use cases of smart mining technology mentioned above not only improve mine safety, but also help to reduce operational costs.

Wireless monitoring systems that relay real-time data lower operational costs in a number of ways:

- Reduced reliance on paying human resources
- Reduced reliance on vehicles and petrol costs for data and asset collection
- No need for expensive cabling and system maintenance operations
- Maintaining critical assets more effectively increases return on investment.

Asset visibility

Having real-time visibility of mining assets allows you to track the location of your mining equipment when you need to use it. This is especially useful as self-driving machinery becomes more widely adopted in the industry. Instead of wasting time searching for various assets, you'll be able to optimise productivity and profitability by streamlining your operations from your central management dashboard.

Data collection

Automating the data gathering processes using smart technology reduces the need for time-consuming and potentially dangerous data collection. Access to real-time data is critical to optimising efficiencies and reducing costs. In contrast, by the time a worker has collected information and returned to the office, the data they have gathered is already outdated.

Maintenance and management

With real-time data connectivity and data analytics, you can optimise your mine's maintenance schedules and production rates dynamically. With predictive analytics enabled by smart tracking and condition monitoring, you will be able to quickly identify required changes to predefined maintenance schedules to keep your equipment running efficiently and safely. This too avoids potential incidents that can disrupt or halt operations for weeks or months, in turn keeping the mine running and generating profits.

Although there are barriers to mines adopting new technologies, these must be overcome in order for mines to remain competitive and successful in an increasingly digital age. From improving safety to enhancing productivity and efficiency, smart mines are the future of the industry. ■

MB CRUSHER INTRODUCES THE NEW MB-HDS523 SHAFTS SCREENER BUCKET

MB Crusher has introduced the 'big sister' MB-HDS523 shafts screener bucket to increase productivity on the job site – their strongest, boldest bucket to date.

The unit is compatible with excavators with an operating weight ranging from 30 tons (60,000 pounds) to 45 tons (90,000 pounds) and meant for sectors where power and sturdiness are essential, such as in quarries, where firms need to treat large quantities of material such as coal and phosphate, as well as to move, sift, and aerate tons and tons of earth, for excavating, earthmoving and carrying out large trenching projects.

Greater production rate

The MB-HDS523 is the only HDS unit with five shafts positioned to ensure a greater production rate and processing speed. The V Shaft System's design precisely creates a simultaneous dual screening effect and increases production.

The largest in the range is also the most powerful: the MB-HDS523 shafts screener is powered by two motors, ensuring consistent and quick performance.

The MB-HDS523 screener is solid, durable, and suitable for demanding construction sites and heavy workloads. The parts that are subject to wear are protected by a reinforced Hardox steel slab, and the bracket and frame are also thicker, making it a well-performing machine.


The new MB-HDS523 shafts screener bucket.

Image credit: MB Crusher

MB Crusher wants to facilitate work on the job site, especially when it comes to maintenance.

MINE ADDS ANOTHER SYKES TO SOLVE FLOODING

When heavy rains flooded a Northern Cape mine, it was the tried and tested Sykes XH150 dewatering pump from Integrated Pump Rental that came to the rescue.

Andre Strydom, rental development manager at Integrated Pump Rental, said, "The ingress of water into the mine could cause major issues, so effective and efficient dewatering is critical to ensure productivity and safety. The Sykes XH150 has an established reputation as a hardworking, reliable dewatering pump, which is a key reason why many customers in the mining sector specify this pump for challenging dewatering applications."

Known for its rapid response to urgent calls from customers, Integrated Pump Rental was able to deliver technical assistance and ensure an appropriate pump solution for the application.

"The Sykes XH150 pump offers automatic priming and solids handling capability. It also has one of the best shaft stiffness ratios of any automatic priming pump on the market," added Strydom.

Sandvik's top Hammer XL breaks new ground

Sandvik Mining and Rock Solutions has released the Top Hammer XL – a drilling innovation that challenges traditional down-the-hole (DTH) drilling on surface mines and large quarries.

The Top Hammer XL offers a faster, fuel efficient and cost-effective method to drill holes from 140 to 178mm in diameter – considerably expanding the hole size range of previous top hammer drills. The system comprises the new Pantera DP1600i drill rig, the new RD1840C rock drill and new LT90 rock tools.

Chris van Tonder, product master at Sandvik Mining and Rock Solutions, said, "The proven carrier provides a solid base for the powerful rock drill, which generates an optimum pulse for the effective tooling system. This, in turn, transfers the high-energy shock wave to the rock with minimum losses."

The performance of the Sandvik Top Hammer XL system has been proven in several field tests, where it has drilled over 100,000m in challenging rock conditions.


The Pantera DP1600i is the newest member of the Pantera DPi series family of intelligent top hammer drill rigs.

Image Credit: Sandvik Mining & Rock Solutions

ROCKSTER CRUSHER PLAYS A VITAL ROLE IN REDUCING DEMOLITION WASTE

Haga R.O.T. Service AB has invested in a state-of-the-art Rockster R1000S mobile impact crusher in order to further strengthen their mission in quality recycling and efficient repurposing of on-site demolition waste.

For the past 25 years, it has been a specialist in heavy demolition, decontamination, and recycling whose rock-solid reputation has been steadily growing. Located in the southern part of Sweden, approximately 160km southwest of capitol Stockholm, Haga R.O.T. has its offices in both Norrköping and Linköping.

Regardless of the size of the project, each one receives proper care and attention with a high level of professionalism. Besides heavy demolition, Haga R.O.T. also does contract crushing of asphalt and concrete as well as recycling in their newly opened recycling center in Norsholm, just outside of Norrköping. The owner John Torsell saw a Rockster R1000S impactor on site in Austria and was immediately convinced that the crusher is the right one for a diverse range of projects.

Image Credit: Rockster

Rockster R1000S mobile impact crusher.

Rockster's Swedish sales partner Niklas Johansson of Biocare Svenska AB, has introduced Rockster mobile crushers to Haga R.O.T. with a lot of success. The company has been in the crushing business since 2008 and during this time they have acquired a valuable knowledge in terms of what works and what does not when it comes to mobile crushers.

Both Haga R.O.T. and Biocare Svenska have a long history of working together. "There is a developed trust between Haga and us. They know that they can rely on our top-quality service and support as well as our expertise on how to process materials. One of the reasons why they chose Rockster R1000S is because of our ability to provide fast and efficient supply of spare and wear parts", said Johannson.

Kleemann's new mobile jaw crusher plant MOBICAT MC 110(i) EVO2

With the market launch of the MOBICAT MC 110(i) EVO2, Kleemann has presented a new generation mobile jaw crushing plant. The further development of the tried and tested predecessor plant offers users groundbreaking technologies for optimising all areas of a typical workday, focusing on economy, operability and sustainability.

MOBICAT MC 110(i) EVO2 plant.

Image Credit: Kleemann

Flexible to use in natural stone or recycling

During the development of the mobile jaw crusher plant MOBICAT MC 110(i) EVO2, Kleemann concentrated on the requirements of demolition and building companies, contractor crushers and quarry operators. With an hourly output of up to 400 t/h, the mobile jaw crusher meets the requirements in the medium output range. It delivers an impressive performance in a wide variety of quarry and recycling applications, where the emphasis is on effective coarse crushing.

Convincing plant design makes faster start-up possible

During the further development of the MC 110(i) EVO2, the development engineers from Kleemann in the main German factory in Göppingen placed the focal point on optimum transportability and a fast start-up. The transport height was reduced by 20cm to 3.40m. Relocation is now possible with simplified transport by means of semi low-loaders. The start-up procedure itself takes only around 10 minutes and includes set-up times for flaps, belts and feed hopper.

Higher availability through innovative overload and control system

A special highlight of the MOBICAT MC 110(i) EVO2 is a new effective two-stage overload system. It effectively prevents blockages and material bridging that can lead to unwanted downtimes. If uncrushable material enters the crushing process, the CSS opens 2x faster than with the predecessor plant or, as an option, even up to 40 times faster. This increases the availability and thus the overall output. Once again Kleemann demonstrates its competence here with innovative solutions for crushing plants.

I4C COMPACT IMPACT CRUSHER FROM MCCLOSKEY

McCloskey International has unveiled the I4C, the latest entry into McCloskey's impact crusher line.

In a class of its own, it brings the power and productivity of an 1125mm (44.3") impactor to a compact footprint for maximum maneuverability. Taking the original impact crusher design and transforming it into a heavy duty compact product that is even more flexible and productive, the new mobile crushers maximise the efficiency of any project site.

Built to the same high standards as full-size crushers, the new I4C delivers additional convenience and choice to suit every customer's needs. McCloskey engineers have adapted the design to meet the evolving requirements of today's projects and operations by developing more compact products while maintaining the same high standard of McCloskey durability, reliability and quality.

The I4C compact impact crushers have a number of features that enhance their operation. The 44" impact crusher has been designed with a deeper chamber, creating greater tramp release space. With an aggressive blow bar and apron design, 4 bar variable speed rotor, and three crush zones with an optional fourth strike, the I4C can be set up as a primary or secondary crusher in some of the toughest materials.

"Listening to our customers is a core element of our design engineering across all product lines. We are bringing to the I4C to market to respond to the demand for a heavy duty, high production impact crusher with high mobility and enriched safety features," said Toni Laaksonen, senior vice president, McCloskey International. For maintenance ease, most components are identical between models to simplify spare parts.

Harvesting the skies, a simple solution for making water available to Kenya

Simon Thomas, an international consultant and board member of Megapipes Solutions Limited, talks about rainwater as a simple solution to meeting Kenya's water supply needs.

Water scarcity is a huge barrier to socio-economic development in Kenya.

Image Credit: Adobe Stock

We are once again in the rainy season. It has been raining heavily in most parts of the country but despite this, most households lack the most basic commodity. Water.

You would expect that with rains aplenty, fresh water might be available to all. But this is not the case. While rainwater harvesting is practiced in the country, most households still use the traditional ways of trapping water, with most of it going to waste.

Kenya is considered a water scarce country. Its per capita water availability is less than 600cu/m, which is below the global threshold of 1000cu/m per capita.

But, to give credit where it is due, of all the countries in East Africa, Kenya has been at the forefront of many innovative technologies that capture the scarce rainwater that large parts of the country receive.

For domestic needs, for instance, roof water tanks provide a quality source of water during the dry seasons when water resources are scarce. For agricultural communities, the country knows many success stories on the large-scale uptake of terracing and other water buffering measures.

Projects on rainwater harvesting have produced and innovated technologies that make smart use of the landscape's natural features.

> "In many parts of Kenya, people cannot be expected to improve their current living conditions without adequate water supply."

Water scarcity is a critical constraint to the country's socio-economic development and its achievement of Kenya's Vision 2030, as well as the global development agenda detailed in the Sustainable Development Goals. The situation is exacerbated by climate change and increasing water demand due to population growth and urbanisation.

Five years ago, the Kenyan national government, in a bid to ensure there is water for all, created an enabling environment composed of policies and legislation designed to increase rainwater storage. These included the enactment of Water Act 2016, which would establish new water institutions namely, the Water

Resources Authority, Basin Water Resources Committee, Water Services Regulatory Board, Water Works Development Agencies, Water Sector Trust Fund and, importantly, the National Water Harvesting and Storage Authority and Water Tribunal.

This tribunal will further streamline the government's water sector and increase access to clean water for all, in adequate quantity and quality at affordable prices as envisaged in Vision 2030 and the Constitution of Kenya.

In spite of these advances, slow implementation and low technology adoption are hampering its realisation. Challenges include poorly coordinated technology approaches by various development partners, unsustainable grant-based community service approaches adopted by development partners and inadequate financing mechanisms to reduce risks.

Simple solution

Rainwater harvesting is a simple water supply technique that involves the capturing and storing of rainwater from roof and ground catchments for domestic, agricultural, industrial and environmental purposes. When surface run-off is collected in reservoirs, it can be used for the management of floods and droughts. Surface runoff can also be used for recharging groundwater, which will positively impact on springs and shallow wells. Rainwater harvesting yields numerous social and economic benefits and contributes to poverty alleviation and sustainable development.

The need for rainwater has been growing in the region, not only for crop production but also for livestock and household use. About 69% of the land in eastern and southern Africa falls within arid, semi-arid and dry sub-humid zones where permanent rivers are few and far apart.

Ground water exploration, development and abstraction are expensive and beyond the reach of many. There has, therefore, been growing interest in alternative sources of water that are affordable and can be implemented using local resources.

Rainwater harvesting systems on the other hand are less expensive, decentralised and participatory and benefit communities in rural and urban areas. Besides the physical water supply structures, there are policy gaps in addressing water-related diseases.

Rainwater harvesting technology is an old established art in Kenya, whose abundant knowledge has not been applied to its full potential, especially in urban informal settlements and its neighbourhoods, due to various challenges and constraints experienced by community-based organisations.

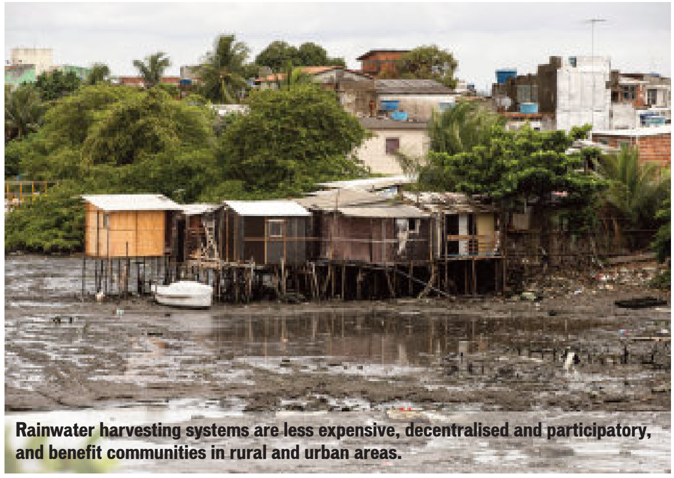


Image Credit: Pexels

Rainwater harvesting systems are less expensive, decentralised and participatory, and benefit communities in rural and urban areas.

Observations in most of our urban centres show that rainwater-harvesting structures are not integrated into the building but are added as an afterthought. This is due to the existing bylaws and lack of awareness by planners, policy makers, beneficiaries and many engineers.

Technological challenges in rainwater harvesting could be turned into realities by adopting pragmatic approaches like creating awareness through exposure, involving other stakeholders, use of appropriate designs in the rainfall data, guttering systems, sizing of storage tanks and use of locally available resources.

In many parts of Kenya, people cannot be expected to improve their current living conditions without adequate water supply. For any development, may it be industrial, commercial or agricultural, water is needed for it to succeed.

Therefore, rainwater harvesting should be introduced as a bylaw in the building guidelines, and any new development should be encouraged to explore and apply the rainwater harvesting technologies, notwithstanding policy, managerial and technical challenges. ■

Advertiser's Index

Translating transformation in mining

John Lewis, managing director, Aggreko Africa, discusses the merits of mining operators turning to hybrid power solutions to meet their sustainable objectives.

The mining sector has undergone significant change over the past year. Change that was both expected and unexpected. On the one hand, digital transformation, integrated operations, supply chain efficiencies, and investments into tools that embedded a competitive advantage were all items on organisations' to-do lists. On the other hand, the pandemic introduced remarkably complex layers of uncertainty and drove rapid digital and investment change that was both unexpected and costly. Mining companies are facing a complex landscape over the next 12 months – a landscape defined by the need to refine operations, improve efficiencies and cut costs while remaining invested in clean energy, robust governance, and mine safety and security.

The Deloitte Tracking the Trends 2021 report highlights how important the mining sector has become in leading the world towards cleaner energy usage. The move to sustainable and renewable energy sources has become critical, not just in light of climate change and reputation management, but to ensure that the sector has access to reliable energy, consistently. The sector is facing an opportunity, one that can potentially allow for the mining sector to reimagine itself and its future, leveraging alternative energy methodologies and solutions to translate the current energy complexity into revenue-generating profitability.

John Lewis, managing director, Aggreko Africa.

Image Credit: Aggreko

The energy challenges

The mining sector must revisit its approaches to traditional energy usage. The concerns that have been aired around climate change and pollution are being supported by governments, regulations and organisations. Decision-making is influenced by the perceptions of clean and green that come with a brand or investment – this trend is increasingly obvious in the growing regulation and investment into companies that invest in environmental, social, and governance (ESG) frameworks. The industry is at a point where it needs to focus its strategies and investments towards energy solutions that have value beyond keeping the lights on.

Fortunately, making intelligent energy decisions is not as complex or as costly as it was in the past.

> "Mining companies are facing a complex landscape over the next 12 months."

Sustainable energy platforms and solutions have evolved significantly over the past few years, with the onus sitting on the energy supplier and the innovator as much as on the mining sector. Today, investment into renewable and inventive energy solutions has changed the landscape considerably, providing the mining industry with far more scope when it comes to reliable and scalable energy.

Another advantage of investing in alternate forms of energy is that the mining sector is cost-saving. With the right partner and the right systems in place, mining companies can reduce their reliance on the grid and thereby cut costs. Considering how high the price of this essential line item can be, these savings can translate into long-term business value and allow for the more intelligent allocation of funds to other areas of the business, such as digital transformation and mine safety. With site-appropriate power solutions in place, the sector can tightly manage the costs of grid connections and energy consumption while also gaining tighter control over emissions within the mines.

Unpacking the advantages

Cost-effective power is all about optimisation and the intelligent use of variable platforms to maximise output and energy efficiency. The Resolute Mining company set out to cut the costs of its Syama Underground Mine in Mali by 40% to reduce its reliance on diesel and to potentially bypass the need for costly connections to the grid. The result was a 16-year contract with Aggreko to build, operate and maintain the world's largest off-grid hybrid power plant that uses thermal, solar, and batteries to augment, and significantly reduce reliance on, the existing diesel power plant. It also removed the risk that is usually associated with solar – the short planning horizon for the mines is difficult to align with the lifespan of the average PV park – with the Aggreko solution that deftly balances solar with battery to ensure an ongoing power supply that is scalable and flexible.

This hybrid approach to mine energy planning has immense potential for the sector. It allows for mining operations to manage their energy provision more carefully over the long and short term, and it can be scaled up or down to support different mining requirements. Aggreko has been working closely with the sector for many years, helping companies to maximise their energy portfolio and refine their green energy approaches using market-leading solutions and methodologies. By collaborating with mining organisations, Aggreko can translate power complexity into seamless delivery that is green, ESG relevant, governance specific and cost-effective. ■

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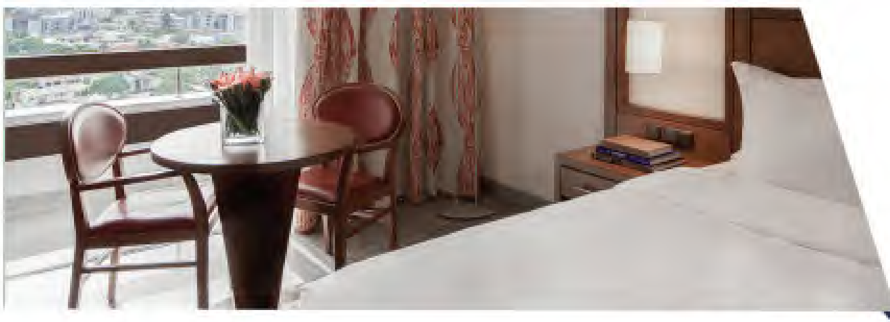

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