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"We believe that access is the means to economic development and, as such, should be scaled as fast as possible."

Ndiarka Mbodji, founder of Kowry Energy

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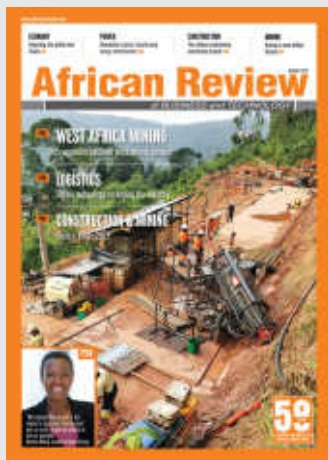


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Cover Inset: Ndiarka Mbodji, founder of Kowry Energy.

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# Editor's Note

Welcome to the August issue of African Review, Africa's number one business magazine. Inside this issue, we've got everything you need to stay up to date with developments across the continent, from key sectors such as mining, energy, transport and construction.

That includes exclusive interviews and insight from top businesspeople and entrepreneurs who know Africa well. Among them is Ndiarka Mbodji, founder of Kowry Energy, a new, decentralised energy service provider spun-off from Rolls-Royce Power Systems (page 24).

We've also got insight into some of the key supply chain areas that connect Africa's businesses with the rest of the world, such as cargo and logistics, and how these are being shaped by new trends, from digitalisation and technology to sustainability (page 20).

There's also analysis into Africa's mining sector, an industry of global significance amid the ongoing energy transition. Companies active here find themselves on the front line supplying the commodities needed for the economy of the future (page 42).

What's certain is that ATR remains your trusted source of information in an increasingly uncertain world. We've been supporting companies working across Africa for almost 60 years, so we know what it takes to stay the course.

I hope you enjoy this issue and do log on to the ATR website for ongoing 24/7 Africa business news.

**Martin Clark, Acting Editor**

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Semano Sekatle, regional commercial manager, SSA, DuPont Water Solutions, explains how, with communities on every continent struggling to meet their freshwater needs, many are looking to seawater conversion as a way to meet water demand.

## AD Ports Group closes maritime acquisition

AD Ports Group, the vertically integrated trade enabler, has reached an agreement to acquire a 70% equity stake in International Associated Cargo Carrier B.V., which wholly owns two Egypt-based maritime companies; Transmar International Shipping Company and Transcargo International S.A.E. (TCI).

The total purchase consideration (enterprise value) of this transaction amounts to US\$140mn. It is the first international acquisition realised by the group.

Transmar is a regional container shipping company that operates across the Middle East, Red Sea, Arabian Gulf and the eastern Coast of Africa. In 2021, Transmar handled 109,000 TEUs.

TCI is a terminal operator and stevedoring company, mainly operating out of the Adabiya Port, where it is the exclusive container operator. Its two lines of business are container and bulk cargo services. In 2021, TCI handled 92,500 TEUs and 1.2mn tons of bulk cargos.

Together, Transmar and TCI reported LTM revenue and EBITDA of US\$8.84mn and US\$2.94mn, respectively. Throughout 2022, the management is on track to deliver triple-digit growth year-on-year driven by both volume and rate increases.

These synergistic and value-accretive acquisitions provide the group with a market-leading platform for further growth opportunities in Egypt, but also in the entire Red Sea and Gulf regions.

H.E. Falah Mohammed Al Ahbabi, chairman, AD Ports Group, said, "This is an important milestone in our ambitious international expansion plan. This acquisition will support our wider growth targets for North Africa and the Gulf region and broaden the portfolio of services we are able to offer in those markets."

The deal is the latest in a series by the group in the Egyptian maritime industry, including agreements with the Egyptian group for multipurpose terminals for the joint development and operation of Egypt's Ain Sokhna Port and an agreement with the general authority for Red Sea Ports for the development, operation and management of cruise ship berths at Sharm El Sheikh Port.



Image Credit: AD Ports Group

**AD Ports Group realised its first international acquisition through the agreement.**

## REDUCING POLLUTION IN THE MEDITERRANEAN

The UN Environment Programme (UNEP) and the European Investment Bank (EIB) have launched the Global Environment Facility Mediterranean Pollution Hot Spots Technical Assistance initiative, which aims to reduce pollution in the Mediterranean marine and coastal environment.

As part of the US\$4mn Hot Spots Pollution project, the initiative will promote adequate and sound water, wastewater, solid waste and industrial emissions management in the southern Mediterranean region, thereby reducing health risks and enhancing access to safe drinking water and sanitation services.

The initiative was launched on the sidelines of the UN oceans conference in Lisbon by EIB vice-president Ricardo Mourinho Félix and Susan Gardner, director of UNEP's ecosystems division.

The two agreed to support preparation of priority investment projects to reduce pollution in the marine and coastal environments of the three southern Mediterranean countries, namely Egypt, Lebanon and Tunisia.

The Mediterranean region comprises a vast set of coastal and marine ecosystems that deliver valuable benefits to all its 250mn coastal inhabitants. It is, however, facing multiple pressures caused by human activities, including chemical contamination, eutrophication, pollution by marine litter and over-exploitation.

The technical assistance initiative will be geared towards helping promoters accelerate the preparation of financeable projects in the water and environment sectors that will tackle these pressures.

The Mediterranean Pollution Hot Spots investment project is one of the US\$42mn GEF-funded MedProgramme's child projects implemented by UNEP Mediterranean Action Plan-Barcelona Convention.

## MILESTONES IN MOROCCO FOR AYA GOLD & SILVER

Aya Gold & Silver Inc. has completed the front-end engineering design (FEED) with Lycopodium Minerals Canada, and provided an update on the expansion of the Zgounder Silver Mine in the Kingdom of Morocco.

"We are pleased to announce the timely completion of the FEED, which is an important first milestone in Zgounder's expansion, setting the pace for upcoming deliverables, especially the procurement of long-lead items and the finalisation of the plant construction contract. Our updated, simplified flowsheet keeps CAPEX and OPEX costs in line with the feasibility study and improves operability," said Benoit La Salle, president and chief executive officer of Aya Gold & Silver.

The corporation achieved several milestones for its operations in Morocco including completing the FEED, simplification of the processing plant flowsheet, and award of a contract for the earthworks for the new process plant and a new haulage road to a major Moroccan contractor among others.

## ► BRIEFS

### Partnership to link up key markets

Image Credit: Stronghold Global Finance



**The partnership will promote FDI and trade across Africa.**

Stronghold Global Finance, an international investment house, has partnered with the Cairo-based Egyptian African Arab Co. for Development (EGAAD) to promote foreign direct investment and trade within the African Continental Free Trade Area and Arab League Nations.

The agreement will link up three key regional markets (Europe, the Middle East and Africa), connecting private investors with development partners and stimulating cross border investment.

### Large wind project coming to Egypt

Image Credit: ACWA Power



**The signing ceremony took place at the headquarters of the Egyptian General Authority for Investment and Free Zones.**

ACWA Power has inked a project agreement to develop a 1.1GW wind project in Egypt.

The ACWA Power-led consortium will work together during the development phase to complete the site studies and secure the financing of this facility. Located in the Gulf of Suez and Gabal el Zeit area, the wind project is the largest single contracted wind farm in the Middle East region and one of the largest onshore wind farms in the world.



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## Qatar Airways and Airlink to enhance connectivity across southern Africa

Qatar Airways and Airlink have signed a comprehensive codeshare agreement to offer travellers enhanced services and greater connectivity between 45 destinations in 13 countries across southern Africa and the rest of the world.

The new codeshare agreement means travellers can enjoy the simplicity of purchasing connecting flights on both airlines using a single reservation with seamless ticketing, check-in, boarding and baggage check experience, during the entire journey.

The partnership will enable customers to book attractive offers from southern Africa to popular destinations in the U.S. such as New York and Dallas, cities in Europe such as London, Copenhagen and Barcelona, and points across Asia like Manila, Jakarta and Cebu.

The agreement also aims to increase Qatar Airways' footprint in southern Africa, with improved access to destinations such as Gqeberha (Port Elizabeth) Hoedspruit, Skukuza, George in South Africa and beyond to Botswana, Namibia, Zambia, Zimbabwe and Mozambique.

Qatar Airways' group chief executive, Akbar al-Baker said, "Expanding our network with Airlink gives our customers more choice of destinations and flights, that we hope will contribute to the rapid recovery of travel, which plays such an important role in southern African economies."

Airlink's chief executive, Rodger Foster, added, "This development is an endorsement of Airlink's relevance to providing air access to the entire region through our expansive network of destinations, which when considered in conjunction with Qatar Airways' global reach creates unparalleled connectivity opportunities.

"As southern Africa's leading airline, Airlink provides comprehensive, safe, and reliable air transportation services, enabling socio-economic development by connecting people with each other and facilitating trade within the region and beyond."



The codeshare agreement means travellers can enjoy the simplicity of purchasing connecting flights on both airlines using a single reservation.

## RESEARCH SHOWS BLUEWATER PURIFIERS REMOVE MOST CONTAMINANTS

Independently verified research by Swedish clean drinking water innovator Bluewater has verified the efficiency of its water purifier technology at removing up to 99.99% of health-threatening microplastics and chemicals such as toxic PFAS from tap water.

Bluewater, which has regional sales offices in South Africa alongside USA, China and Europe, instigated two studies at its research lab in the Royal Institute of Technology (KTH) after it became alarmed about the growing number of scientists reporting finding microplastics in humans and especially small children and infants.

In March 2022, researchers at Vrije Universiteit Amsterdam reported finding microplastics in the blood samples of 22 anonymous donors. Three-quarters of the test subjects appeared to have plastics in their blood with the most common type of plastic found being polyethylene terephthalate (PET), which is used to make water bottles. In a separate study, scientists at the San Giovanni Calibita Fatebenefratelli Hospital, in Italy, discovered microplastics in the placenta of unborn babies.

Bluewater senior research scientist Ahmed Fawzy said the tests carried out by Bluewater and verified by the independent worldwide bio-analytical testing group Eurofins show the company's purifiers can remove up to 99.99% of both microplastic particles and PFAS chemical pollutants from contaminated drinking water.

The Bluewater microplastic study involved heavily contaminating drinking water with four common microplastic particles (PE, PP, PS, and PVC) prior to feeding it into an under-sink Bluewater Pro purifier.

## SULNOX SOLVES FUEL ISSUES FOR SOUTH AFRICAN HAULIER

A South African fleet operator has seen its business transformed after adopting UK fuel technology which has dramatically improved the efficiency of its vehicles.

Johannesburg-based Zanospan was having issues with a large number of trucks returning from extremely long-haul trips across Africa 'limping' back to base because of inconsistent and poor fuel quality. To address these issues, the company began using technology developed by British fuel experts SulNOx Group Plc, and the trial has been so successful, that Zanospan has now adopted it across its entire fleet.

"Since adopting fuel conditioning with SulNOxEco, we have not had a single truck limping back to our depot in Johannesburg," said Paul Mosenthal, managing director of Zanospan Pty Ltd.

## ► BRIEFS

### Bushveld secures funding for Vametco mini-grid

Bushveld Minerals Limited, an integrated primary vanadium producer and energy storage solutions provider, has secured funding for the engineering, procurement and



Bushveld Energy has achieved financial close for the Vanadium Redox Flow Battery (VRFB) hybrid mini-grid project.

construction of the Vametco hybrid mini-grid, which is owned by its energy subsidiary, Bushveld Energy Limited. Fortune Mojapelo, CEO of Bushveld Minerals, said, "This project is the first of its kind in South Africa, and will serve as a VRFB reference site for the mining industry, utilities and other users."

### DMT Group to empower regional value chains



SADC headquarters in Gaborone, Botswana.

The Secretariat of the Southern African Development Community (SADC) has appointed DMT GROUP to lead on the delivery of an investment programme that will empower regional value chains in copper, battery storage, and mining inputs. The SADC 'Regional Study and Project Viability Scan' will identify investment opportunities for building local content capacity in three critical areas for economic activity and value addition in southern Africa.

## Heneways takes delivery of new forklifts from Smith Power

As part of its fleet replacement programme, Heneways Freight Services has taken delivery of two new forklift units from Smith Power Equipment for its Johannesburg and Durban branches.

Heneways Freight Services recently went into the market for material handling equipment for its two key branches and opted for a Baoli KBD 4-tonne counterbalance unit and a reach truck from Smith Power Equipment.

The KBD 4-ton counterbalance unit, which has been deployed to the Durban branch, is equipped with additional hydraulics for use with a paper roll clamp.

Comfort is assured by the full suspended cabin, which reduces vibrations originating from the ground. The large, spacious and easily accessible cabin is designed to guarantee maximum visibility, consequently increasing safety on site, explained

Vivian Gravett, area sales manager, Baoli Forklifts at Smith Power Equipment.

The KBD offering is an extremely versatile product for multiple uses. Great attention has been paid to lift truck manoeuvrability, driven by the special reduced diameter steering wheel. Other important driving aids are the pedal parking brake, the electronic driving direction selector, the easily accessible hydraulic levers and the dashboard with a multi-function display.

The lithium-ion (Li-ion) battery offers high efficiency and longevity. "Given that Li-ion batteries require less time to charge than their lead-acid counterparts, this solution will help the client increase productivity. Unlike lead acid batteries, Li-ion batteries can be opportunity-charged, thus reducing downtime significantly," said Gravett.

Smith Power also offers a forklift rental solution to provide customers with greater flexibility in managing their budgets. "As part of the rental deal, Smith Power Equipment handles the service and maintenance of the machine, thus providing the customer with greater uptime, higher productivity and greater cash flow, enabling companies to grow their businesses," concluded Gravett.



Comfort is assured by the full suspended cabin.

## HILLSIDE PARTNERS WITH SOLANA TO BOOST SUSTAINABLE ENERGY

South 32's Hillside Aluminium operation has partnered with Solana Energy to bring sustainable energy to one of South Africa's most important commercial hubs.

Launched in June 2022, the multi-phased project will see the establishment of renewable solar power infrastructure in the Richard's Bay and King Cetshwayo District (KCD) economic regions, which is expected to add between 2 and 2.5MW of renewable energy capacity to the local grid within 12 months.

The project will aim to help businesses that supply Hillside Aluminium to start seeing the benefits of renewable electricity. By ensuring these businesses reduce their monthly electricity costs and greenhouse gas emissions, the partnership will create a positive impact for workers and businesses, and drive investment that supports the region's transition to a low carbon economy.

South32's vice-president of supply, Rob Jackson, commented, "This partnership is a wonderful example of our enterprise and supplier development work in action."

"It will support local businesses to grow and provide training opportunities to the local community, while boosting sustainable energy."

The partnership will also support new venture creation through the roll-out of an installer base for both consumer and small business solar power and battery storage installations. Ten potential candidates from KCD will be identified to run five new micro-franchises, which will conduct Solar PV installations for households and small, micro and medium enterprises on an innovative monthly payment basis.

A solar training academy will also be developed to upskill young electricians in the fields of solar photovoltaic technology through an accredited programme.

## NAMPOWER INAUGURATES OMBURU POWER STATION

According to the company's media channels, NamPower has recently inaugurated its first fully owned and operated renewable energy plant, the Omburu 20MW PV Power Station.

The entire workforce involved in the project - from consultants to labourers - were Namibian. The semi-skilled and unskilled labourers were sourced locally from Omaruru local community and the NamPower employees appointed to run the power station underwent training to equip them to operate and maintain the plant.

The company said that this is a demonstration of NamPower's unwavering commitment to becoming the leading electricity solutions provider of choice within the Southern African Development Community and a catalyst for economic growth in Namibia and in the region.

## BRIEFS

### Bosch Rexroth appoints new distributor



Boltgas boasts a skilled and committed workforce.

Bosch Rexroth Africa Development has appointed Boltgas as its distributor in Zimbabwe, with effect from March 2022. Boltgas is a well-known brand in the Zimbabwean market, with two branches strategically situated in Harare and Bulawayo respectively.

Boltgas provides onsite services to local mines, to supply a variety of products and services including filtration, hydraulics, mineral processing solutions, ground support and more.

### First carrier neutral DC for Namibia



Armada is the first Namibian carrier-neutral DC.

The new Paratus Namibia Armada Data Center (DC) is set to be launched in Windhoek. The centre opens its doors to both network operators and individual colocation tenants so they will not be bound to a single network service provider. Armada enables clients' freedom of choice and peace of mind in respect of connectivity resilience, multiple concurrent MMPs (Meet-Me-Points) on campus, access, and uptime.

## GE announces completion of Azito Phase IV power plant

GE and Azito Energie SA have announced the start of operations for the simple cycle of the Azito Phase IV power plant, located in the Yopougon district of Abidjan in Cote d'Ivoire.

For this project, GE provided a GT13E2 2012 MXL2 gas turbine including power generation equipment, analytics and controls software, and a service agreement for twenty years to manage all aspects of the project's lifecycle. The plant will add 180MW, the equivalent electricity needed to power more than 300,000 homes in Cote d'Ivoire, representing approximately 8% of the country's current installed capacity and the largest gas power plant in the country.

"Because of its relevance in providing energy to the people of Ivory Coast, the commissioning of the Azito Phase IV power plant is another milestone in ensuring energy efficiency for generations to come," said Luc Aye, managing director, Azito Energie SA. "The growth of gas power generation plays a critical role in facilitating Ivory Coast's decarbonisation and energy targets by delivering accessible, affordable and reliable energy across the country. We look forward to furthering the collaboration with GE's innovative technology solutions."

In addition, Azito power plant will use big data analytics to improve overall Azito's fleet performance and make smarter operational decisions using GE Digital Asset Performance Management software solution.

"This project supports Ivory Coast's plans for transition towards lower carbon power generation through gas and renewables, and highlights GE's commitment to supporting power plant operators in their energy transition efforts to increase electricity production capacity with efficient gas technologies," said Kenneth Oyakhire, services director, GE Gas Power sub-Saharan Africa.

With nearly 70 years of presence in sub-Saharan Africa, GE has been collaborating with energy stakeholders to deploy innovative technologies tailored to respond to the needs of the sub-Saharan Africa region with reliable baseload and flexible power.



The plant will add 180MW, the equivalent electricity representing approximately 8% of the country's current installed capacity.

Image Credit: GE

## SIERRA LEONE GROWTH OPTIMISM BUT KEY UNCERTAINTIES REMAIN

The new World Bank Sierra Leone Economic Update, launched this July in Freetown, forecasts a growth of 4.4% on average in Sierra Leone's real GDP growth from 2022-24. Key contributions are expected to be made from the mining and agriculture sectors, with a partial recovery in tourism and manufacturing a key player too.

However, the growth is underpinned with downside risks and uncertainties due to the Ukraine conflict, global inflationary pressures, and the continued threat of Covid-19 outbreaks.

Headline inflation is expected to remain elevated in 2022 due to ongoing global supply chain disruptions facing a number of key industrial sectors.

Pre-Covid-19 fiscal gains have been reversed since the pandemic, with emerging expenditure needs and revenue shortfalls. The pandemic disrupted the fiscal consolidation momentum of the years prior, prompting authorities to provide fiscal stimulus support such as social transfers. This saw a fiscal deficit increase of 2.6% of GDP (to 5.8%) in 2020 and 5.9% in 2021.

While total expenditure has increased, revenue collections have registered gains throughout 2021, in part due to one-time mining revenues and stricter enforcement of tax laws.

Public debt has continued to rise, approaching 79% of GDP in 2021, a strong reflection on persistent fiscal deficits, currency depreciation, and limited access to finance through concessional sources.

"Sustained fiscal adjustment and active debt management can support debt sustainability and reduce vulnerabilities. Reduction in domestic borrowing needs will also free up more credit for the private sector," said Abdu Muwonge, World Bank country manager for Sierra Leone.

## SFD KICKS OFF DEVELOPMENT PROJECTS IN MAURITANIA

During the visit of the Saudi Fund for Development's (SFD) delegation to the Mauritanian Islamic Republic, SFD's CEO, HE Sultan bin Abdulrahman Al-Marshad, signed an agreement to finance Phase I of a water project in Kiffa, Mauritania from the Senegal River.

The project will help sustain water resources, provide clean water to the community, minimise the risks of water-related diseases, and achieve water security. The project includes a 250 km water network that reaches 90 villages and serves more than 20% of residents of Mauritania.

The SFD delegation to Mauritania also inaugurated three development projects in the water, health, and education sectors, including the Nouakchott Water Distribution Network Project, which aims to improve drinking water quality, treat erosion and degradation in the former water distribution network, and properly manage the available water resources.

Image Credit: Adobe Stock

## GWl announces new digital water schemes



The initiative will give more than 100,000 people across rural Ghana access to clean water.

Grundfos Ghana Water Initiative (GWI) has announced that it is developing 12 additional sites in collaboration with the Community Water and Sanitation Agency (CWSA) to give more than 100,000 people across rural Ghana access to clean water by the end of 2023.

The GWI, a project by SafeWater, a strategic business unit within Grundfos, aims to reach one million people in underserved communities in Ghana with clean water by 2026.

Image Credit: Sujimoto

## Sujimoto deploys electric vehicle charging points



The EV charging stations give the owners an opportunity to say goodbye to fuel.

Sujimoto Group, the company behind the exclusive high-rise in Banana Island has once again set the bar higher in the luxury real estate industry in Africa. The LucreziaBySujimoto is deploying more than 20 Electric Vehicle (EV) charging stations, giving the owners an opportunity to say goodbye to fuel. The Lucrezia features design styles that lend to compete with the best star hotels in the world.



## Sunshot Initiative launched by Husk Power for renewable energy

Husk Power Systems, the operator of the largest fleet of community solar-hybrid microgrids has announced its 'Nigeria Sunshot Initiative', a multiyear effort to benefit at least two million Nigerians with reliable, renewable energy by 2026.

The initiative consists of a three-part strategy demonstrating accelerated microgrid deployment at scale, improving livelihoods by providing financing for the purchase of energy efficiency appliances (for both households and MSMEs) and catalysing greater local socio-economic development by rolling out productive use activities, including agri-processing and cold storage.

"Husk Power will do its utmost to support federal, state and local governments to deliver on Nigeria's goal of universal electrification by 2030," said Olu Aruike, country manager of Husk Nigeria. "With more than 90mn Nigerians still living without access to energy, the Nigeria Sunshot is a real-world demonstration that the microgrid industry is ready to scale, and drive rural economic growth with a net-zero, resilient solution."

Key goals of the Nigeria Sunshot include building at least 500 microgrids by 2026; establishing 400,000 connections that benefit more than two million people; taking at least 25,000 diesel and gasoline generators offline; providing affordable energy to 8,000 women-led business customers; and electrifying 700 public health clinics, 200 private hospitals and 100 public schools.

In late 2021, Husk became the first company to commission multiple microgrids at once in Nigeria, clearly demonstrating the ability to scale. Husk expects to end 2022 with more than 20 microgrids in operation.

Besides its presence in Nigeria and Tanzania, Husk is also in discussions to enter multiple new markets in sub-Saharan Africa. By scaling in Nigeria, Africa's largest economy, Husk will be able to expand and achieve even greater impact. The company committed in a 2022 UN Energy Compact to build 5,000 microgrids by 2030.



Image Credit: Adobe Stock

**Husk expects to end 2022 with more than 20 microgrids in operation.**

## BEYOND THE GRID FUND FOR AFRICA SIGNS FURTHER PROJECTS

The Beyond the Grid Fund for Africa (BGFA) programme has signed four further agreements with off-grid energy service companies in Burkina Faso, Liberia and Zambia to support the expansion and scale-up of mini-grid connections and sales of high-quality solar home systems. With these projects, the BGFA programme has now contracted ten projects supporting the establishment of more than 580,000 off-grid energy connections to provide energy access for people living in rural and peri-urban areas in Burkina Faso, Liberia and Zambia.

These four newest projects have been signed with ARESS Burkina Faso, Energicity Corporation in Liberia, Power Corner Zambia Ltd and ENGIE Energy Access Zambia.

"We are very happy to be one of the companies awarded through the BGFA programme, which aims to deploy clean, sustainable and competitive energy solutions to people in remote areas of Burkina Faso. With the support from the programme we will be able to scale-up our activities in the country and reach up to 21,000 businesses and households with our solar home systems," said Léonide Michael Sinsin, CEO at ARESS Burkina Faso.

The mini-grids that will be constructed to scale up off-grid energy access will serve as village hubs for increased income-generating activity through productive use of electricity, which will drive the creation of socio-economic welfare and increase the reliability of power supplies for people living in remote areas. The distributed solar home systems will provide a cleaner, safer, cheaper and more environmentally friendly alternative to candles and kerosene lamps, which are often used among low-income customers. The funded companies will also help to improve the affordability of off-grid energy products.

## GREENYELLOW SIGNS ON FOR BENIN PROJECTS

GreenYellow, a global player in decentralised solar power generation and energy efficiency, has signed four concession agreements for the development, financing, construction and operation of PV plants with the Government of Benin, for a total of 50MW.

These plants will be located in Bohicon (15MW), Parakou (15MW), Djougou (10MW) and Natitingou (10MW). Their construction was entrusted to GreenYellow and its local partner Egnon Consulting after a tender supported by the Millennium Challenge Account Benin II. The IFC and Proparco, lenders mandated to finance these projects, were also represented at the signing ceremony.

Robinson Alazraki, general manager of GreenYellow Africa, said, "The fact that all the projects were awarded to GreenYellow and our local partner is further confirmation that our strategy is well-suited to the needs of African governments and businesses."

## BRIEFS

### Eni Cote d'Ivoire to distribute improved cookstoves



Image Credit: Adobe Stock

**Reducing pressure on forest resources is a primary concern for the country.**

Eni Côte d'Ivoire has launched the distribution of improved cookstoves (ICS) to vulnerable households in Bouaké. Under the project, Eni will distribute 100,000 ICS over a period of six years, starting in 2022, from the Region of Gbêké.

The initiative aims to substitute the traditional wood-based cooking devices, reducing exposure to unhealthy smoke for people and decreasing the pressure on forest resources.

### Avanti partners Viasat Energy Services



Image Credit: Adobe Stock

**It will provide seamless connectivity to Viasat customers even in remote locations.**

Avanti Communications, a leading provider of high throughput satellite capacity across EMEA, has signed a long-term capacity lease agreement with global communications company Viasat Inc. to help support the connectivity needs of its customers in the energy sector.

Capacity from Avanti's fleet of HYLAS Ka-band satellites will be used to extend coverage across western Africa. It will allow Viasat to accelerate the deployment of Ka-band solutions.



## Kenyan industry turning to mass-produced solar concentrators

As fuel prices continue to soar, Kenya is one of a host of countries across Africa turning to solar concentrators to heat industrial processes.

Iberafrica Power Limited in Nairobi, one of Kenya's leading independent power producers (IPPs), has recently successfully commissioned a 300 sq m solar installation, produced by Absolicon and Nairobi-based partner Ariya Finergy. The project consisted of Absolicon solar collectors T160, and produced more than 12.7MWh in the first two weeks of installation.

"The solar field is operating at very high-performance levels during the initial days, confirming our expectations," said Loick Bruand, project manager and process engineer at Absolicon.

The elevated structure of the Absolicon T160 field, sitting 5.5 m from the ground, showcases the flexibility and modularity of the Absolicon technology and its ability to maximise the available space and irradiation of the installation.

Jeff Kimanthi, technical manager at Iberafrica, commented, "We have witnessed a seamless operation of the solar thermal system since its commissioning in early May. The power plant's heating load and accompanying costs that erstwhile were supplied by electricity through heating coils and a HFO steam boiler have now been significantly displaced."

The solar thermal installation of the aperture area was provided by Ariya Finergy, a Nairobi-based engineering, construction and financing firm that develops and builds renewable energy and power stabilisation projects for critical commercial and industrial facilities. The solar field provides energy for fluid pre-heating, delivering up to 95°C temperatures.

Troy Barrie, co-founder and chief technology officer at Ariya Finergy, remarked, "We are proud to partner with Absolicon and Iberafrica on this first-of-its-kind project in East Africa. We have the experience and expertise to continue the momentum and deliver further solar thermal projects to help drive Kenya and East Africa forward."

Plans for an Absolicon production line in Kenya operated by Ariya Finergy is now proceeding, with on-site visits at the installation to showcase the technology to other national prospects.



The solar installation has since produced more than 12.7MWh.

Image Credit: Absolicon

## KENYA WASTE UPCYCLING EARNS INVESTMENT BOOST

Anglo American has agreed to lead the latest investment round of Sanergy Inc., an organic waste upcycling business with operations in Kenya.

Sanergy's innovative solutions are designed to help transform how fast-growing cities in the developing world manage waste, by upcycling it into high-value agriculture and energy products, such as insect-based protein for animal feed, organic fertiliser for regenerative farming and biomass fuel for sustainable and localised power sources.

Peter Whitcutt, CEO of Anglo American's marketing business, said, "Together, we believe we can develop new solutions that also support our own decarbonisation objectives – including being carbon neutral across our operations by 2040 – as well as those of our customers. There is growing consensus on the role carbon markets can play in driving positive behaviours around emissions reduction as part of integrated climate mitigation strategies."

"Sanergy is an example of how carbon markets can be a component for change, mobilising capital for projects and activities that capture and remove emissions while providing wider societal benefits."

Sanergy launched its pilot plant in Nairobi in 2011, and has since developed it into the largest organic recycling facility in sub-Saharan Africa, with a second facility expected to begin construction soon.

Sanergy CEO, Ani Vallabhaneni, said, "This investment takes us into pioneering territory as we look to expand across Africa and into South America and Asia, all the while in service of ever-growing urban populations, as well as farmers and local agriculture. We are delighted that Anglo American is joining us on this journey and expect its expertise in so many of our potential markets will help us accelerate our business and the good that we can do."

## BARRICK RECOGNISED AS KEY TANZANIAN PARTNER

Barrick Gold Corporation has been recognised as the largest contributor to government revenue in 2021, confirming its position as a key partner for the socio-economic development of Tanzania.

The company has committed US\$6 for every ounce of gold sold by its two Tanzanian mines to improving healthcare, education, infrastructure and access to potable water in the local communities.

President and chief executive of Barrick, Mark Bristow, explained, "When we took over these mines they were a moribund burden on the government and their investors. In a very short time, we redesigned and re-engineered them, creating what are in effect two new mines."

"They are well placed to deliver their annual production guidance and have the potential to achieve a combined Tier One status in Barrick's portfolio, meaning that they are capable of producing at least 500,000 ounces of gold annually for more than 10 years."

## ► BRIEFS

### Djibouti welcomes green hydrogen partnership

Image Credit: Fortescue Future Industries



Representatives from the Government and FFI agreed the framework.

Fortescue Future Industries (FFI) is partnering with the Government of the Republic of Djibouti to conduct preliminary studies with a view of developing green hydrogen production across the nation.

The framework marks a major step in the nation's first ever production of green hydrogen.

Minister of Energy and Natural Resources, Yonis Ali Guedi, said, "This project has the potential for significant impact... in terms of job creation."

### RSwitch partners with EFT

Image Credit: RSwitch



Mathieu Rwiyereka, CEO at RSwitch, and Grant Flanagan, CEO of EFT Corporation, signed the deal.

RSwitch, the national e-payment switch of Rwanda, has partnered with fintech giant EFT Corporation to enable Rwandans to access their money across all technological platforms. The deal will see RSwitch utilise EFT's suite of end-to-end payment solutions, enabling faster payments between banks, mobile operators and ATMs. This partnership supports the Government of Rwanda's Vision 2050 to accelerate to an upper middle-income nation by 2035.



## Walkabout commences graphite mining at Lindi Jumbo plant

Walkabout Resources Ltd has announced that the mining of graphite ore has commenced at the Lindi Jumbo site in Tanzania, with the first blast completed within the starter pit.

The first production blast was successfully completed at the end of June, with mining commencing since. Within the blast area, topsoil was removed and stockpiled, with the intention of finding later application and rehabilitation, as stipulated in the Environmental Impact Assessment of the site.

The clay-rich overburden was used in the construction of the tailings storage facility, with the principal purpose of current activities to source waste rock for the facility's ongoing construction.

More than 150 workers continue to progress earthworks and civils across Lindi Jumbo, with processing plant civil works approximately 83% complete as of July 2022. Civil and earthworks continue to focus on the concentrator and screening buildings, as well as the area surrounding the tailings storage facility.

Lindi Jumbo will be connected to grid power via two lines, through an agreement with the Tanzanian Electrical Supply Company (TANESCO), and installation of the 33kV powerline is now complete and reaching the project site.

Walkabout Resources' CEO, Andrew Cunningham, commented, "The first blast and mining of the starter pit area is a new chapter in the development of the Lindi Jumbo Graphite Mine and for Tanzania, as it also represents the commencement of the first high-grade, large-flake stockpile of responsibly sourced graphite in Tanzania. The effort and expertise put in by our earthmoving contractor TNR, as well as our Lindi Jumbo team on site to conduct the inaugural blast in a safe and controlled operation was a proud moment for all involved."

Lindi Jumbo has received a number of key concessions from CRDB Bank to enable an initial drawdown of the project's debt. These include a reduction in the amount of Standby Letter of Credit (SLBC) and the lowering of the minimum credit rating of the issuing bank, increasing the number of potential issues.



The site saw its first production blast in late June, with mining commencing throughout July.

Image Credit: Walkabout Resources

## TRIUMPH RENEWS CONTRACT WITH MAN PRIMESERV

Triumph Power Generating, an independent power producer (IPP) located in Kenya, has signed a five-year extension with the possibility of continuing further for its full operation and maintenance (O&M) contract with MAN PrimeServ, the after-sales brand of MAN Energy Solutions, for its 83MW power plant in Kitengala, Kenya.

The project consists of 10 Himens 18H32/40 engines and an additional steam turbine.

Henning Hansen, head of MAN PrimeServ O&M Execution, said, "Taking over a power plant already in commercial operation, built and operated by unknown EPC and O&M contractors, was something we had never done before. But we were confident that we had the necessary skill set within our group to manage such a challenging project."

The original contract with MAN PrimeServ was signed in December 2016, after MAN had won an international tender. In contract to most conventional O&M agreements based on MAN technology, this contract was for the day-to-day management of third party equipment.

The agreement was supported and made possible by Stefan Eefting, senior VP for PrimeServ Germany, and Michael Filous, VP of O&M agreements, who were both eager to demonstrate MAN's capability to provide O&M services on such third party equipment.

"The project posed many challenges to every part of our organisation, both for our permanent O&M staff at the power plant and also for our excellent technical back-up from our PrimeServ experts in Germany and Belgium," concluded Hansen.

Along with the operation and maintenance, MAN applied a turbocharger upgrade package and implemented the MAN control and protection concept to improve reliability, efficiency and output of the engines.

## BIONTECH STARTS MRNA FACILITY CONSTRUCTION

BioNTech has reached the next milestone in the establishment of scalable mRNA vaccine production in Africa, welcoming partners for the first time as construction works begin for its Kigali, Rwanda site.

A target has been set for the first round of manufacturing BioNTainers for Q4 2022. The facility marks a continental first, with the company expecting additional factories to be established in Senegal and South Africa with the close cooperation of the nations' respective partners. The initial site will become a node in a decentralised and robust end-to-end manufacturing network.

H.E. Paul Kagame, President of the Republic of Rwanda, commented, "The groundbreaking for BioNTech's state-of-the-art mRNA production facility is a pivotal milestone. We are happy to have BioNTech as a partner, and I applaud the company's commitment to working with Africa on a continental basis to help secure our vaccine resilience for the future."

## BRIEFS

### Kenyan portable vaccine fridge wins Africa Prize



The fridge is both solar-powered and mobile for distribution.

Norah Magero has won the Royal Academy of Engineering's 2022 Africa Prize for Engineering Innovation for Vaccibox, a small, mobile, solar-powered fridge that safely stores and transports medicines like vaccines.

Magero is the first Kenyan to win the award in its eight-year history, and the second woman. With three in 10 children not adequately vaccinated, Vaccibox hopes to add and establish cold-chain infrastructure to boost distribution.

### AfDB launches 200,000 job initiative



The project will last two years, with a target of contributing to the 200,000 job-a-year vision.

The Government of Rwanda has partnered with the African Development Bank (AfDB)'s Fund for African Private Sector Assistance for a two-year project to boost industrial capacity across the country.

The Enhancing the Quality of Industrial Policy in Rwanda Project (EQUIP) is worth US\$550,000, and aims to build capacity of staff under the Ministry of Trade and Industry, targeting the creation of over 200,000 jobs annually.



## Upcoming Events Calendar 2022

### AUGUST

**17-18**

#### INFRASTRUCTURE AFRICA

Virtual  
<https://www.infrastructure-africa.com/>

**23-24**

#### POWER & ELECTRICITY WORLD AFRICA

Johannesburg, South Africa  
<https://www.terrapinn.com/exhibition/power-electricity-world-africa/index.stm>

### SEPTEMBER

**5-9**

#### ELECTRA MINING AFRICA

Johannesburg, South Africa  
<https://www.electramining.co.za/>

**20-22**

#### NIGERIA ENERGY

Lagos, Nigeria  
<https://www.nigeria-energy.com/en/home.html>

**2025**

#### IAA TRANSPORTATION

Hanover, Germany  
<https://www.iaa-transportation.com/en>

### OCTOBER

**3-7**

#### AFRICA OIL WEEK

Cape Town, South Africa  
<https://africa-oilweek.com/Home>

**18-21**

#### AFRICA ENERGY WEEK

Cape Town, South Africa  
<http://aecweek.com/>

**24-30**

#### BAUMA

Munich, Germany  
<https://bauma.de/en/>

### NOVEMBER

**6-18**

#### COP27

Sharm El Sheikh, Egypt  
<https://cop27.eg/>

**8-11**

#### ECOMONDO

Rimini, Italy  
<https://en.ecomondo.com/>

**15-16**

#### THE MINING SHOW

Dubai, UAE  
<https://www.terrapinn.com/exhibition/mining-show/index.stm>

**22-24**

#### PROPAK WEST AFRICA

Lagos, Nigeria  
<https://www.propakwestafrica.com/>

## Digitalisation and sustainability at the heart of bauma 2022

After more than 620,000 visitors flocked to bauma 2019, anticipation is building for this year's edition of one of the world's most important construction and mining machinery trade fairs which is arriving in Munich from 24-30 October 2022.

More than 3,600 exhibitors from 62 countries showcased their portfolios at bauma 2019, spanning an exhibition space of more than 600,000 sq m. With the event registering persistent growth in terms of exhibitors and attendees since 2007 and consistently receiving top marks from exhibitors, bauma 2022 is set to be bigger and better than ever before.

This year's iteration focuses on the driving forces within the industry including:

- Construction methods and materials of tomorrow
- The way to autonomous machines
- Mining – sustainable, efficient, reliable
- Digital construction site
- The way to Zero Emission.

The themes are being explored in a five-part webinar series organised in conjunction with the German Mechanical Engineering Industry Association and, once the conference is underway, focus days within the bauma FORUM will investigate each topic from range of different perspectives. Talks, keynote speeches and podium discussions from industry professionals, researchers and the start-up



**3,684 exhibitors from 62 countries and regions showcased their portfolios at bauma 2019.**

Image Credit: bauma

community will discuss the issues moving the industry forward and shaping its future.

Within the Innovation Hall alongside the bauma FORUM, attendees will also have the opportunity to explore the Science Hub, exploring the status of research and science in the field of the five key topics; the Start-up Area for new innovations for the first time this year; Machines in Construction MiC 4.0, where 11 member companies will present the results of their intensive collaboration on IoT

as a device; and more.

Of course, the nucleus of the conference will be the exhibitors who are presenting products from the full range of industry including construction and commercial vehicles, material handlers and attachments, drilling, lifting appliances, tools and special systems, formworks and scaffolds, mining extraction and processing, and more. With companies from AMA to Zenith registering their attendance, bauma 2022 is not one to be missed.



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# Why immersive learning trains Gen Z faster and better

Upskilling a new generation of workers within the constraints of the new normal depends on cutting-edge solutions such as immersive training. Its benefits include plant-specific learning, reduced risks and costs, and faster training times, says Stephen Reynolds, industry principal - chemicals, AVEVA.

Over the course of the pandemic, we have seen how connected meetings bring us together in one room. It is now possible to take a virtual class photo, where all participants gather in a room virtually. But the benefits of remote, collaborative software go further than cool backdrops or virtual auditoria. In the new normal, industrial businesses can replicate hands-on training from thousands of miles away.

Immersive training takes the virtual meeting one step further. The technology brings learning to life in an environment this generation understands and embraces.

For businesses with remote or dangerous installations, such as in chemicals or oil and gas, immersive training offers engineers, technicians and other professionals an interactive learning classroom where they can simulate possible scenarios, and gain (virtual) hands-on experience in high-risk situations.

## Understanding immersive training

At its core, immersive training uses technologies such as augmented reality (AR) and virtual reality (VR) to create engaging, experiential learning in a safe, controlled and virtual environment. Trainees may put on off-the-shelf gaming peripherals such as console controllers and VR headsets like the Oculus Rift to access bespoke training programmes that support learning for both new and experienced staff.

AR and VR training can be used in many different ways. The technologies can offer an introduction to facilities and installations. They can



Image Credit: AVEVA

Stephen Reynolds,  
industry principal - chemicals, AVEVA.

also support safety and performance by reducing the risk of accidents and the need to shut down plants for real-world training. Novice operators can practice high-risk industrial procedures in safe training simulators, and teams can work together to strategise and test new products.

Immersive training minimises project risks, facilitates accelerated training with a lower budgetary outlay and maximises ROI – all while maintaining safe plant operation. And because simulating chemicals processes saves on energy and raw materials, virtual training offers significant sustainability benefits.

## Unify the learning experience

While off-the-shelf VR and AR training environments have their place, unifying an organisation's many systems into a single, secure data hub can help chemical companies unlock the benefits of immersive learning. Such a unified environment reduces the time and effort involved in sharing detailed engineering data and accelerates learning by enabling business-specific outcomes.

Linking up with a company's digital twin, for example, enables organisations to parachute trainees into immersive, 3D versions of real-world plants. There, they can operate within an environment that mimics the dynamic process behaviour of the plant.

Such bespoke solutions build businesses' confidence in their staff on several levels. Staff quickly learn their way around plants. They can easily understand the impact of wrong decisions. And they experience how correct safety and reliability improve plant performance without affecting health and productivity.

## Consider cloud solutions

The possibilities of immersive training truly come into their own when anchored within cloud-based solutions.

On-premises simulators carry a high upfront capital expense and can only train one batch of employees at a time. By contrast, a subscription-based cloud solution shifts the cost to operating expenses that match training activity and budgets. Furthermore, cloud solutions open up training to a significantly larger group of employees that may be located anywhere – with trainees able to access modules on demand.

## Maximise training ROI

By enabling businesses to deliver accelerated training that is sustainable, efficient, and effective, learning based on technologies such as AR and VR helps maximise return on investment (ROI) in plant personnel training. Not only are fewer training installations required, but travel costs are saved with virtual learning.

Similarly, scalable cloud-based systems offer better value for money. AVEVA data shows that immersive learning environments can generate as much as 40% in training time and cost savings.

The latest generation of immersive digital tools are enabling businesses to enhance the efficiency and development of their training programs in an efficient and flexible manner. As a new generation of digital-native employees enters the workforce, future-forward companies would be wise to invest in immersive training now if they want to build attractive workplaces that provide high job satisfaction and enable staff to excel. Better training means better results. ■

*Learn how immersive training is transforming the world's leading chemicals company at:*  
<https://www.aveva.com/en/perspectives/success-stories/basf/>

“Immersive training minimises project risks, facilitates accelerated training with a lower budgetary outlay and maximises ROI.”

STEPHEN REYNOLDS, INDUSTRY PRINCIPAL - CHEMICALS, AVEVA.



# Trade is the key

After a pandemic-imposed break in the annual Paris-based OECD Africa Forum, June 2022 saw the resumption of the important event's in-person iteration. Stephen Williams reports.

**T**here are many who view the Organisation for Economic Co-operation and Development (OECD) as a 'rich man's club' but who are probably unaware of the OECD's Development Centre (DEV). The DEV has worked closely with the African Union's Commission for Economic Affairs in formulating policies for the continent's growth.

The OECD Africa Forum, held in Paris, arrived among increasing optimism that Africa may have been about to turn a corner with the creation of the African Continental Free Trade Agreement (AfCFTA).

The AfCFTA aims to boost intra-African trade by connecting 1.2bn people as a single market with a combined GDP of more than US\$3 trillion, the largest free trade area in the world. This ambitious agreement, reached by 53 of the 54 African countries (the exception being Eritrea), will boost African trade significantly.

The African continent needs more and better growth, especially to ensure sustainable recovery from the Covid-19 pandemic. African economic growth is projected to reach up to 3.9% in 2022. This rate, higher than that of Latin America, signals a continued rebound in African economies from the global low of 2020.

Regional processing offers opportunities for adding further value to Africa's agricultural and raw materials and to stimulate industrialisation. Processed and semi-processed goods accounted for 79% of intra African exports in 2019, compared to 41% of Africa's exports to other markets.

The entry into force of the AfCFTA in January 2021 opens up new opportunities for integrating into regional value chains by expanding access to markets, inputs, technology and investment.

Most African firms lack the minimum productivity levels, skills and organisational capabilities required to export directly or form

strategic relationships with multinational enterprises.

If AfCFTA is to address this problem, the health of the continent's regional economic communities (REC) is paramount.

## REC opportunity

COMESA is the largest REC in terms of its 21 nation members, covering an area of over 12mn sq km, and a population of more than 390mn people. It was represented at the OECD Africa Forum, by its secretary general, Chileshe Kapwepwe.

COMESA, it can be argued, has been a pioneer of African regional integration. It was instrumental in a proposed tripartite agreement with the East African Community and Southern African Development Community.

The adoption of Electronic Certificate of Origin (e-CoO) by SADC trade ministers in 2019 (in place of manual documentation) is a case in point. Just as the e-CoO increased the seamless flow of intra-trade between the tri-partite countries by eliminating impediments caused by the manual process, the AfCFTA can learn from this experience to help facilitate continent-wide trade.

As a joint publication from the OECD and African Union (the African Development Dynamics 2022) pointed out, "Covid-19 significantly disrupted external financing flows to Africa; these also require attention from policy makers.

"Total Foreign Direct Investment (FDI) flows to Africa, including both investment into new facilities as well as mergers and acquisitions of existing facilities, dropped by 18% as a result of the initial Covid-19 shock.

"This sharp fall, from US\$46bn in 2019 to US\$38bn in 2020, followed the global downturn in FDI at the start of the Covid-19 pandemic (UNCTAD, 2021). In addition, both remittances and portfolio flows to Africa decreased in 2020.



Chileshe Kapwepwe, secretary general of COMESA.

Image Credit: Stephen Williams

"While the global outlook for investment has stabilised compared to the early periods of the pandemic, African governments need to update their investment strategies to benefit from the reorganisation of global supply chains and the global minimum corporate tax."

This observation sparked a wide-ranging debate. One senior economist spoke anonymously to *African Review* stating, "The AfCFTA will undoubtedly attract increased FDI to Africa as the agreement offers economies of scale to large multinationals who wish to invest and who can both import raw materials and semi-processed materials from the continent duty free, as well as export finished goods to the rest of Africa and the world.

"The AfCFTA's success will depend on how successful it is in supporting Africa's small- and medium-sized enterprises to enter value chains, as well as stimulating improved transport infrastructure to make African-based industry and manufacturing truly globally competitive."

As COMESA's secretary general Chileshe Kapwepwe remarked, "African countries need to focus on industrialisation, and that's a very important issue for us at COMESA.

"We are focusing on agribusiness and looking at how we can deploy the right technology and skills to be able to increase the capacity of producing finished goods or just adding value from raw materials to semi-finished or semi-processed so that we can have that increase in capacity and in products that we can then trade amongst ourselves. I think that's an aspect we need to focus on." ■

**“African countries need to focus on industrialisation, and that's a very important issue for us at COMESA.”**

**CHILESHE KAPWEPWE, SECRETARY GENERAL OF COMESA.**

# Becoming a part of global production hubs

Economist Moin Siddiqi explains how African countries can integrate into global value chains (GVCs) which could provide a shot in the arm for their economies.

International trade in the modern world is dominated by increased fragmentation of production across borders, giving rise to what is referred to as GVCs – the vehicle for dissemination of technology from lead firms to their suppliers. Over decades, GVCs have become significantly more concentrated, both geographically and organisationally. Typically, economic upgrading is viewed as ‘moving up the value chain’ from low-value to relatively high-value activities, with product and process upgrades reflecting increasing levels of technological sophistication and worker skills.

GVCs have made inroads in the manufacturing, services, and agriculture sectors of developing countries. Various tasks from conception and design through production, marketing and distribution have become more dispersed across the globe and between firms. This enables a particular country to join a production network without developing domestic supply chains. Countries can be positioned ‘upstream’ or ‘downstream’ in GVCs depending on their specialisation, and their positions can change over time.

Upstream economies produce the raw materials or knowledge assets (such as research and design) at initial production stages, whilst downstream economies assemble processed products (such as machinery and electronics components) or specialise in customer and distribution services (end-use by final consumers).

The extent of GVC integration depends on a number of country characteristics, including proximity to major markets; natural resources; human (skills and capabilities) and physical capital

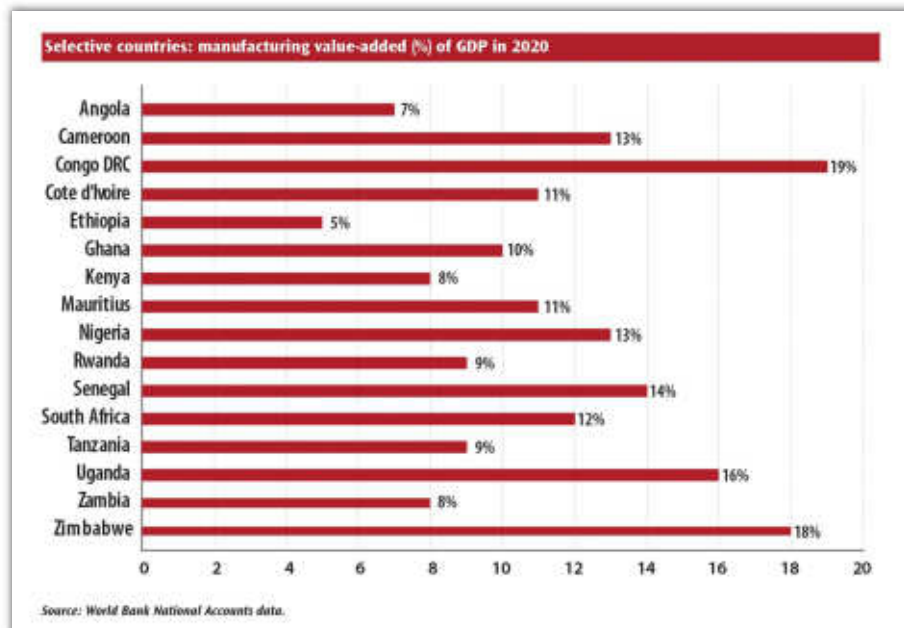


Image Credit: Alain Charles Publishing

(electricity and transportation); institutional quality; logistics/connectivity; wage competitiveness and trade openness.

## Servicification of manufacturing

The role of services in production and trade has gained even greater prominence with the rise of GVCs. Similar to merchandise trade, services are also disaggregated and traded as separate tasks, allowing for the development of ‘service value chains’ in their own right, which can be deployed anywhere in the world. In recent years, the volume of trade in services has expanded more rapidly compared to merchandise trade.

The bulk of services trade relates to the actual operation of GVCs – notably logistics and warehousing – but also includes a variety of sub-sectors which are supplied at every stage of the production phase such as banking/finance, insurance, business processing services and information technology. These services play a crucial role in merchandise trade by helping to move various components efficiently across national borders.

## Africa's GVC participation

The African region serves more as a source of primary inputs than as a production hub. The most

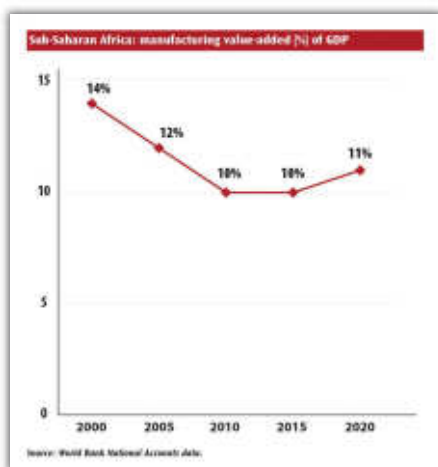
integrated African countries in GVCs are Côte d'Ivoire, Senegal, Ethiopia, Kenya, Ghana, South Africa, Mauritius, Egypt, Morocco and Tunisia. Recent years have seen the growth of Africa's automotive operations as assembly hubs in the production networks of multinational car companies, mainly in South Africa and Morocco.

Other medium to high-tech manufacturing capabilities in Africa have also developed due to the high content of foreign value-added embedded in the exports of electrical machinery and metal products.

Africa's GVC participation, however, is low, on average, compared with East Asia or South America. Most countries have joined textile manufacturing GVCs thanks to preferential trade access to advanced economies, thus raising their participation in agro-industries and manufacturing exports (namely Ethiopia, Kenya, and Ghana). Meanwhile, resource-rich countries (Nigeria, Angola, Guinea, Zambia and DRC) have the highest GVC participation – exports of petroleum and raw materials are used to produce other countries' final (refined) products.

The size of sub-Saharan Africa's (SSA) manufacturing sector in value-added and employment is relatively low. African firms' share of world trade in textiles is only 2.5% of final exports; 0.5% of intermediate apparel and footwear exports;

Image Credit: Alain Charles Publishing





in automobiles is 1.3% of final exports and 1% of intermediate exports (World Bank data).

### Critical supportive environment

Participating countries require more proactive government-business collaboration focused on connecting highly productive global firms, potential local suppliers, and the domestic workforce. Incentive systems that select sectors for promotion through export subsidies, credit allocations, etc., have proved effective in East Asian economies.

Integrating into GVCs requires a series of complementary policy actions in areas like standards, Internet, infrastructure connectivity and skills. “African policymakers need to design policies to foster the integration of firms into global markets through participation in GVCs and attract foreign direct investment – thus enhancing the transfer of technology. Still, these policies must complement measures that enhance digital connectivity and strengthen linkages between manufacturing and services,” according to the World Bank.

Having supportive infrastructure services (especially reliable energy supply and significant transport logistics capacity); a conducive business climate; labour market flexibility; skilled manpower; a pool of capable firms and entrepreneurs; as well as lower tariff and non-tariff barriers are deemed pivotal for integrating into and upgrading in GVCs – thereby attracting more lead global firms to Africa.

In this context, making fuller use of GVCs requires African countries to improve their logistics/transport networks and boost educational/training standards – a prerequisite for a skilled workforce, and adopt and enforce sensible regulations to lower the uncertainties. Participating firms must be productive and operate in a country that can credibly enforce contracts to fulfil global quality standards.

### Positive spill-overs

Higher GVC participation, associated with increased imports/exports of intermediate goods, has beneficial

effects on the wider economy. It boosts firm productivity through expertise in production process; exposure to global quality standards (hygiene, safety and traceability); and increased innovation – important to remain competitive. Furthermore, inward FDI (a by-product of GVC integration) can help foster economic growth, while helping to raise wages and employment in host countries.

Global trade in modern agriculture, manufacturing and tradable services has been fundamentally transformed by GVCs. In principle, GVCs benefit developing nations by easing entry into global markets. They allow firms in developing countries to access global markets by producing specific tasks without developing side industries as a precondition.

The required inputs and services are imported – thus making it easier for multinationals to locate specific auto components or a narrow stage of production in consumer electronics in developing countries. Adding ‘enhanced value’ to trade and building linkages with foreign firms help reduce African countries’ unhealthy reliance on primary commodity exports, and thus vulnerability to exogenous external shocks.

### Window of opportunity

Africa boasts potentials to integrate much deeper into GVCs by leveraging its comparative advantages. A young expanding workforce, large tracts of unused fertile land plus vast mineral resources provide added-value opportunities in downstream processing, textiles/apparel, agro-business and tourism, among other sectors, thereby helping to foster export diversification and structural transformation in African economies.

As African economies expand, local suppliers have an opportunity to play a larger role in GVCs, since they can use their domestic markets as a base to improve their capabilities and strengthen their ties with global lead firms. Firms typically need to have low costs, relatively large-scale production, or a special technological edge to participate in global markets. Firms benefit most from GVC participation if



GVCs have made inroads in the manufacturing, services, and agriculture sectors of developing countries.

Image Credit: Adobe Stock

they are relatively large, technologically advanced, professionally managed, and have diversified export markets (both in terms of products and countries). But not every enterprise can compete on these terms; only the best can flourish in GVCs.

In sum, the African continent captures only a modest share of global

trade in value-added terms, but higher level of GVC integration holds potential of boosting employment and diverting resources from less productive activities to newer ones, raising overall productivity. Capturing GVC gains requires good institutions and policies.

Moin Siddiqi, economist

## OPPORTUNITIES AND RISKS ARISING FROM GVCs

### Positive effects:

- Job creation from new activities
- Increased integration in world trade
- Attracting foreign direct investment
- Emergence of domestic higher value-added activities
- Skills and technology spill-over through interaction with external suppliers and purchasers
- Possibility to leap-frog into specific activities without having to develop vertically integrated industries domestically
- Increased regional trade.

### Negative effects:

- Being locked into low value-added stages of GVCs
- Foreign investors operating in isolation, hence limited spill-overs to domestic economy
- Depletion and outflow of the country's natural resources
- Volatility of trade flows based on changes in strategies of multinational enterprises
- Erosion of social and environmental standards to investment
- Loss of regulatory control to multinational enterprises.

Source: African Development Bank

# Time to get business done better

As a telco provider and also a technology partner, MTN Business can meet all client requirements.



There is increasing demand from clients to connect their remote sites in all areas.

Image Credit: Getty Images

According to MTN, a lot of clients have come out of the Covid-19 pandemic with a focus on repositioning themselves in the marketplace.

For the first time, there is a recognition that digitising operations can offer unprecedented commercial value in scale and agility.

Having made substantial investments in fibre technology, high-speed terrestrial and undersea networks and new frequency spectrum across the markets wherein it operates, MTN is perfectly positioned to respond.

A few years ago, MTN also made the decision to build an IP capable radio network for their mobile services, giving their core network the ability to seamlessly integrate with enterprise IP networks. Their

mobile towers deliver services to enterprise clients absolutely anywhere they have a network, shortening the last mile and removing complexity and cost.

Now there is increasing demand from clients to connect their remote sites in all areas, including rural and semi-rural. MTN has not only assisted clients with overcoming the connectivity hurdle, but is also committed to helping them automate and digitise their businesses.

## Digital demand

Ten years ago, it was unheard of for an automobile manufacturer to approach a mobile operator about the need to automate their plant. Today, airports, ports, mines and manufacturing plants are relying on

what was classically considered mobile networks to automate and digitise their operations.

The same telecom provider (now techco) provides the high speed network to store the company's data in a cloud environment. MTN believes that clients expect their techco partners to add a lot more value.

## MTN's evolution

For MTN, the focus has shifted from being a core telecommunications services provider, towards becoming a technology solutions provider or techco.

The value that the client derives from a technology partnership is now defined by the commercial value-added, not simply a solution that meets a specification and price point. The service offering of a techco

includes the Internet of Things (IoT), unified connectivity, cloud services, data security, networking infrastructure and asset tracking.

The scope has changed to being client and industry specific, so the requirements and service portfolio vary from one client to the next. Now, the expectation is that a techco like MTN must respond to challenges and make it work, supported by the appropriate technology for each market, and following the client wherever their business leads.

Clients need partners like MTN that will invest in underlying infrastructure, deliver the services they require, have market credibility, are financially sound and have a long-term commitment to their market presence. ■



# Viable sustainable mobility solutions

The drive for electric vehicles is continuing to move up through the gears despite perceived drawbacks.

There is a great deal of scepticism around electric transportation in Africa, with critics pointing to constraints such as a lack of long-term strategies and insufficient infrastructure.

While there is merit to these arguments, it has not stopped many of those operating on the continent continuing to push for sustainable mobility, anticipating that the days of internal combustion engines fed by fossil fuels are numbered.

Indeed, the rapid adoption of electric vehicles (EVs) and zero-emission technologies are critical steps along the path to a net-zero future, as reported in a recent report empowered by Oxford Business Group titled 'Gearing Up for the Green Automotive Transition'. In addition, it continued, across sub-Saharan Africa EVs are a potential solution to reducing the fiscal burden of fuel subsidies, advancing the rollout of renewable energy infrastructure and opening up new local manufacturing and assembly industries.

This puts the automotive industry in a pivotal position which is instigating a response. According to Mordor Intelligence, the Africa and Middle East EV market is projected to grow from US\$40.25mn in 2021 to US\$93.1mn in 2027 and, across the continent, a new story breaks every week of another organisation taking another step along the EV pathway.

## Pushing for change

For instance, following a successful pilot programme in Accra, Ghanaian energy technology company Kofa is preparing to introduce its high-end battery-powered motorcycle and battery swap stations into the Ghanaian market. With their Swap & Go system, the company will allow for seamless access to charged



Image Credit: Rheinmetall

The E-Bakkies are a mobility concept based on e-scooters and e-bikes.

interchangeable batteries in swap stations which are being installed across Accra. As a result, riders will be able to effectively get back on the road faster than it takes to fill a tank of petrol.

In South Africa, Rheinmetall Denel Munition (RDM), a subsidiary of tech enterprise Rheinmetall, has taken its first steps toward improving its climate footprint by introducing EVs and off-grid, solar-powered charging stations. RDM aims to eliminate more than 350 internal combustion vehicles from its fleet and has introduced electrically powered buses at its

Somerset West and Boskop plants. The 'E-Bakkies' are a mobility concept based on e-scooters and e-bikes and will be used for transportation around RDM's extensive locations.

In June, Lagos took a significant step towards integrating sustainable public transport throughout the city when the Lagos Metropolitan Area Transport Authority (LAMATA) signed a memorandum of understanding (MoU) with Oando Clean Energy Limited (OCEL).

Through the MoU, OCEL and Lagos State have established a partnership which will see the

rollout of electric mass transit buses, supporting charging infrastructure and service centres.

Frederic Oladeinde, commissioner for transportation, Lagos State, commented, "With an understanding that transportation is a key emitter of greenhouse gases in Nigeria, we developed a strategy to cut greenhouse gases by 50%. A key component of this strategy was identifying and developing a more robust mass transit system for Lagos that would include rail and waterways amongst others. Using electricity to power mass transit is a step in the right direction, and from there we would gradually transit to private cars."

Adewale Tinubu, chairman of Oando Clean Energy, remarked, "It's easy to be perturbed by the perceived challenges that come with the mega-city status tag, but by taking this bold step, Lagos is showing the continent what is indeed possible and giving other cities the impetus to redefine today how to build a public transport system for the future." ■

“By taking this bold step, Lagos is showing the continent what is indeed possible and giving other cities the impetus to redefine today how to build a public transport system for the future.”

ADEWALE TINUBU, CHAIRMAN OF OANDO CLEAN ENERGY

# Digital logistics disrupting the supply chain

Advancing technology, new business models, and dramatic shifts in customer behaviour have reshaped the logistics industry in the first two decades of this millennium. Expect a lot more to come.



Image Credit: Adobe Stock

Most logistics companies are investing in modern digital solutions to enhance their operations.

**W**ith cargo and freight volumes creeping up once more after the Covid-19 lockdowns, logistics operators are looking to strengthen systems and processes that can add value and improve efficiencies in the supply chain.

Digital solutions such as 5G, Big Data, IoT, blockchain and automation can build transparency, reduce cost, enhance customer experience, among other potential benefits. The effort is well worth it in what is becoming an increasingly interconnected world.

“The connection between a country’s digital capabilities and growth prospects is undeniable,” said Agility’s chief executive, Tarek Sultan, on the launch of the 2022 Agility Emerging Markets Logistics Index recently.

The Index notes that those African economies that have worked to improve their infrastructure, business conditions and overall competitiveness are generally performing far better against other emerging markets.

The same can be said perhaps for companies, large and small, who keep abreast of technology. It has

already transformed how the big operators work across the continent.

## Ready for the future

This year, Kuehne+Nagel, one of the world’s big logistics providers, significantly expanded its network of offices across Africa – all are managed and supported by a control tower in Durban, South Africa.

It marks a single point of customer contact and allows for complete visibility across the African network, including remote locations, while ensuring the group’s global service standards, supervising data quality, enabling shipment visibility and managing cargo flow.

It is also positioning the company for the future, one where Africa is expected to have a far greater profile going forward.

Modernisation investments underpinned by technology can also bring with them life-saving benefits depending on the cargo involved.

Freight in Time (FiT) is a family-owned entity in Kenya founded in 1965 that serves the East African logistics sector, providing sea and air transport, brokerage services, warehousing and distribution. After

receiving investment from Norfund, the Norwegian development agency, it was able to expand its temperature-controlled warehousing and distribution for third parties, an underserved niche in the region.

It means FiT has been asked by the likes of Gavi, the global vaccines initiative, to assist with the last mile delivery of crucial medicine to reach underserved remote and rural poor areas.

## A vital supporting role

It highlights some of the sensitivities involved in logistics, often an industry viewed as drab, albeit an essential one. How these traditional and new, emerging digital technologies knit together to form a streamlined supply chain will be important given the anticipated growth of Africa in the decades to come. The sub-Saharan region already plays an increasingly significant role in global trade as it is home to more than one billion people, half of whom will be under the age of 25 by 2050.

This year, DHL Global Forwarding launched in Zimbabwe to extend its own footprint, and give local and

regional businesses instant access to global markets.

Its local offering includes Saloodo! – a road freight platform connecting shippers and transport providers that maps all processes digitally, including shipment tracking, freight document management, invoicing, and payment. Simple applications like this that are easy to use for customers have become a common trend, even if the technology behind it all is extremely complex.

Indeed, the sheer pace of technological change represents a challenge for all players.

In order to rapidly respond to these shifts, keep up with moves in digitisation and innovate, Bolloré Logistics is looking to partner with savvy start-ups and universities.

It hopes to tap into new and emerging technologies and generate ideas to co-create next-generation service offerings from drones and robotics to digital tools that enhance sustainability.

Environmental improvements are increasingly being embedded into the supply chain, another area in which technology can play a vital supporting role. ■



## São Tomé and Príncipe signs PPA with Global OTEC

Backed by the SIDS DOCK Bureau, comprising of the Prime Ministers of the Kingdom of Tonga and Belize; the President of the Republic of Seychelles; and the SIDS Dock coalition of 32 nations, São Tomé and Príncipe and Global OTEC have signed the world's first agreement to develop a power purchase agreement (PPA).

The agreement will cover the development and deployment of a 1.5MW floating Ocean Thermal Energy Conversion platform offshore São Tomé Island.

Under the initiative of the Global Ocean Energy Alliance (GLOEA), as members and signatories of a public private partnership (PPP), the Government of São Tomé and Príncipe, along with partners SIDS DOCK, the United Nations Industrial Development Organisation (UNIDO) and Global OTEC have arrived at an important milestone in the agreement with the signing of a Memorandum of Understand (MoU).

"Global OTEC will help realise the people of São Tomé and Príncipe's Energy Vision. This important milestone shows both public and private sector funds that key terms of a bankable agreement can be reached," said Global OTEC CEO, Dan Grech.



The deployment will see a 1.5MW floating Ocean Thermal Energy Conversion platform offshore of the island.

## COMAP AND MOTORTECH AGREE TO CONTINUE GAS ENGINE CONTROL COOPERATION

ComAp, a leading supplier of smart control solutions for power generation, and its partner Motortech GmbH, a developer and manufacturer of ignition systems, air/fuel ratio control systems, and gas engine control systems, have agreed to continue their cooperation in control solutions for stationary gas engines.

The agreement was previously made in light of the acquisition of one of ComAp's competitors under Generac Holdings last year, to which Motortech belongs. Both companies agreed that ComAp can supply Motortech with its standard product offering, providing the same benefits to customers as they are customarily used to.

"Motortech has always been our valued business partner in the gas engine market. Based on the recent market changes we are glad that we found a way to continue the relationship with Motortech GmbH under the new product supply contract. Motortech is becoming one of our important customers for ComAp standard products and we look forward to our cooperation," said Miroslav Dvorak, product line manager for advanced products at ComAp.

ComAp offers globally-recognised control solutions for gas engine genset applications ranging from 10kW to 2MW. Its controls suit packager and aftermarket demands for the safe and reliable operation and efficient utilisation of heat, cold, and electrical power.

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# Making light work of load shedding

Uninterruptible power supply (UPS) solutions are helping key industries continue operations amongst energy outages.

It is no secret that in the wake of the pandemic Africa's energy sector has, in some areas at least, struggled.

Outside of energy access rates progress halting, the most obvious demonstration of this can be seen in the heightened occurrences of load shedding, most notably in one of the continent's most advanced countries – South Africa.

Here, rolling blackouts have become an unwelcome familiarity for South Africans with the population expressing frustration at public utility Eskom. Indeed, many of the citizens have begun to take the problem into their own hands, with media reports suggesting that Makro has reported load shedding survival supplies have surged by a staggering 300% year-on-year.

While energy interruptions are of course cause for concern and a great disruptor for everyday life, they can also take a significant toll on industry as machinery and key equipment is brought to a halt. In addition, digital technologies are increasingly permeating all aspects of society and business and are reliant on a consistent supply of electricity – especially for larger infrastructure such as data centres.

According to a Schneider Electric-sponsored white paper titled 'Succeeding at Connected Operations with Edge Computing', one of the key technology challenges companies must contend with to keep connected operations resilient

and reliable is environmental, power and connectivity issues.

It states that operations environments are inherently challenging environments for technology to operate in and often power surges and outages are common. An important consideration here, it continues, is to deploy uninterruptible power supply (UPS) solutions.

In this age of growing energy demand pitched against issues such as load shedding, the importance of UPS cannot be understated and ensuring such systems are incorporated into business strategies and infrastructure has perhaps never been so essential. This piece of equipment provides sites with backup power in the short term whenever the mains power supply fails or drops to an unacceptable level, and ensures devices remain protected and running during such times. In some cases, regarding data, unscheduled shut downs can lead to data loss and UPS can provide a lifeline to allow a safe shutdown when mains power drops out.

**“When power isn't controlled, it can lead to a host of issues including data loss and the need to restart automation machines.”**

**VINCENZO SALMERI, VP, COMMERCIAL AND INDUSTRIAL, SECURE POWER DIVISION AT SCHNEIDER ELECTRIC**



The 24V DC Easy UPS from Schneider Electric.

## Solutions at hand

Schneider Electric, a leader in digital transformation of energy management and automation, understands the importance of such technology and has recently introduced the new 24V DC Easy UPS. Created for commercial and industrial environments where power disruption risks productivity, the UPS minimises downtime and protects equipment resulting in reduced machine maintenance and improved control over industrial infrastructure.

Vincenzo Salmeri, VP, commercial and industrial, secure power division at Schneider Electric, commented, “When power isn't controlled, it can lead to a host of issues including data loss and the need to restart automation machines from scratch after outages. Schneider Electric's Easy-UPS helps operators in commercial and industrial environments gain control with remote monitoring and management to fully protect their investment.”

With the potential to scale (customers can add up to four additional battery packs for

increased runtime during extended power outages) the 24V DC Power UPS will be available globally.

In Nigeria, Huawei Technologies has collaborated with TD Africa to bring absolute power solutions to Nigeria. According to media reports this included its UPS solutions such as the SmartLi – a battery energy storage system for UPS that is compact, safe, reliable and easy to maintain.

Elsewhere, Microsoft has been pioneering its new vision for UPS by connecting battery typically providing backup power for data centres to the grid. In this way, they will help grid operators provide uninterrupted service when demand exceeds the supply generated elsewhere on the grid by renewables such as wind, solar and other sources thereby reducing the use of fossil fuels.

This has so far been implemented in Ireland which, according to Paul Troughton, senior director of regulatory affairs for Enel X, is a blueprint for how technologies such as grid-interactive UPS systems at data centres and other industrial facilities can help decarbonise electric power grids around the world.

“We can still maintain our requirements around reliability to our customers but at the same time utilise our infrastructure to provide reliability to the grid, as well as lower CO<sub>2</sub> emissions and reduce costs for all energy consumers,” commented Nur Bernhardt, senior programme manager for energy at Microsoft. ■



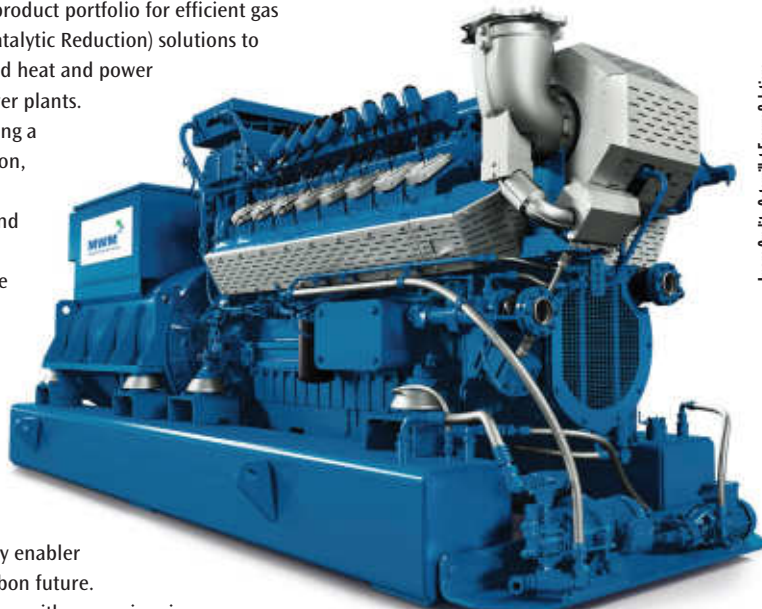
## MWM'S EMISSION-REDUCING SCR SOLUTIONS

MWM has supplemented its product portfolio for efficient gas gensets with SCR (Selective Catalytic Reduction) solutions to reduce emissions of combined heat and power plants and cogeneration power plants.

The company is now offering a compact complete SCR solution, with optional urea tank and urea solution for both new and existing plants.

SCR technology enables the reliable reduction of NOx emissions, which aims to support compliance with recent emissions regulations. The technology also facilitates the broader use of gensets in distributed generation applications, a key enabler on the path to a reduced-carbon future.

Distributed energy generation with gas engines is already seen to be playing a pivotal role in complying with emission restrictions and climate goals established by governments across the continent. The use of biomethane and other biogases from renewable raw material is a step in the right direction along the path to



The new SCR system can be integrated within existing engine controls.

a sustainable and reduced-carbon future.

Existing plants can be quickly converted by MWM Service, keeping downtime to a minimum. MWM Service evaluates the appropriate measures to take to facilitate smooth and prompt conversions, before dismantling existing auxiliaries and mounting the new SCR systems. The new SCR system can be connected and integrated with existing MWM TEM or TPEM engine controls. After initial installation, remote access to the plant is made available, assuring quick support and high plant availability.

Within its two brands, MWM and Cat, Caterpillar Energy Solutions is driving towards high-efficiency and eco-friendly solutions for distributed power

generation and manufactures gas engines, electricity power plants, and combined heat and power (CHP) plants.

Image Credit: Caterpillar Energy Solutions

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# Beyond access

Kowry Energy is a new, decentralised energy service provider spun out from Rolls-Royce Power Systems that offers solutions to independent energy suppliers in sub-Saharan Africa. Its mission is to go ‘beyond access’, but what does that mean? African Review talked to Kowry Energy founder Ndiarka Mbodji to find out more.

**African Review (AR): How did you get to where you are today?**

**Ndiarka Mbodji (NM):** With more than 22 years working in Europe’s industrial sector, 16 of which were in power generation, I realised my experience would make a transformational difference back in Africa, where I come from.

I wanted to provide reliable and affordable energy to the bottom to middle of the demographic pyramid across sub-Saharan Africa (SSA). Coming from the power industry, some things were clear: There is no technical challenge, as decentralised systems are proven technology and have been for over 200 years. Instead, we should define a better-suited business model to industrialise the decentralised energy sector. This can only be achieved by working collaboratively with local energy producers, leveraging the transformative power of energy to deliver bottom-line profitability and greater value to the end-user.

**AR: What is Kowry Energy offering that differs from other micro-grid operators and developers?**

**NM:** The sub-Saharan market is dominated by developers, delivering energy access one project at a time. We believe that access is the means to economic development and, as such, should be scaled as fast as possible. With 700mn people unserved, delivering energy access one project at a time is not effective. Kowry Energy bundles these small projects into portfolios, removing complexity and risk through standardisation and full supply-chain management.

This approach enables local energy providers to connect with more customers faster at lower



Kowry Energy aims to enable the decentralised energy sector in SSA to thrive.

costs, clearing the road to go ‘beyond access’. This bridges the gap between energy access and income-generating activities to ensure sustainable growth in demand and long-term energy usage, unlocking opportunities for local economies.

Using AI-based predictive modelling from the data generated, we provide insights to local energy providers, helping them identify the right products and services for the end-users of a specific community.

**AR: What equipment and technologies are your solutions requiring?**

**NM:** Kowry Energy is technology agnostic. We select and integrate the most appropriate and reliable technology at the lowest costs. We standardise the design for a portfolio of projects and deliver each asset with digital solutions, such as remote monitoring and smart metres for improved asset management.

The countries of SSA are blessed with a powerful solar resource, which makes installation of hybrid solar and energy storage the prime system for a community’s electrification. There are cases when a mix of solar and gas is more suitable, such as powering the

industrial sector.

As we are all committed to achieving net zero, it is crucial to recognise the importance of gas as a vital transition energy source, which one day can be replaced by hydrogen or other e-fuels. And, it would be impossible to meet the societal and industrial demands of the continent with 100% solar or other renewable energy sources, given the prohibitive price and supply of energy storage.

**AR: Which projects have you undertaken so far, and what is in the pipeline?**

**NM:** We have just completed four installations in our launch countries, Mali and Nigeria, and are now rolling out our portfolios in these countries. We look forward to entering Kenya and Ivory Coast in the second half of this year. Currently, our pipeline is for 60MW to be delivered within the next five to eight years.

**AR: What challenges are you expecting to face, and what strategies do you have to counter these issues?**

**NM:** Whether big or small, energy projects remain infrastructure and capex intensive, the weight of which

is primarily carried by private equity. The main challenge I see remains the speed and scale of private equity participation in a market that requires a US\$220bn investment over the next decade. Our portfolio approach, combined with a collaborative model, which maximises each player’s capabilities across the value chain, provides private equity with a more sizeable vehicle with less risk and greater longevity and return.

**AR: What do you hope will be achieved at ‘Africa’s’ COP27 this year?**

**NM:** The fact that Egypt is hosting COP27 is a recognition of Africa’s pivotal role in achieving global net zero despite its relatively minuscule contribution to global emissions. Yet, Africa is disproportionately suffering from climate change. Needed immediately is help with adaptation; it is estimated that SSA will need about US\$50bn a year for the next decade to protect itself.

At COP26, developed nations reiterated their pledge to give developing countries US\$100bn per annum with a greater proportion for adaptation over mitigation. Worryingly, there is doubt this pledge will be fulfilled, with war raging at the doors of Europe and inflation skyrocketing to a level unseen for 70 years (ironically driven by energy prices).

I hope COP27 will secure the promises for developing nations and that such pledges are seen as investments that will benefit everyone globally. Leaders must see the opportunity in the challenge. There is only one Planet Earth. If Africa is not part of the net zero solution, there won’t be any ‘net zero’. ■



NOOR solar complex project in Ouarzazate, Morocco. Co-financed by the African Development Bank and the Climate Investment Funds.

# The green revolution

Four upcoming renewables projects that will help transform Africa's energy infrastructure in the decade ahead.

**T**hese are exciting times for Africa's energy sector, with trailblazing renewable projects popping up across the continent.

As well as increasing in size, these projects also demonstrate a range of fast-evolving technologies that are

set to transform energy production in the years ahead.

Leading operators active in this field include French trio EDF Renewables, Engie and TotalEren; Saudi Arabia's ACWA Power; the UK's Lekela Power; Norwegian firm

Scatec; and ENEL of Italy; among a host of other smaller, niche players.

It is a sector characterised by innovation, and one that is increasingly attractive to commercial financiers, with more projects drawing support from banks keen to

supper the clean energy revolution.

Here are some of the flagship projects underway and in the planning that will continue the transformation of the continent's electricity infrastructure in the years ahead:

## SOLAR – FIRST PROJECT-FINANCED CONCENTRATED SOLAR THERMAL POWER PLANT

**South Africa: Redstone Solar Thermal Power Project**

**Capacity: 100MW**

**Developer: ACWA Power**

**Expected: 2023**

The Redstone concentrated solar thermal power (CSP) plant is the first project-financed CSP with molten salt central receiver project in the world. It is also one of the largest investments under South Africa's Renewable Energy Independent Power Producer (REIPPP) Procurement Programme.

With 12 hours of full-load energy storage, it will be able to deliver a stable electricity supply to more than 200,000 homes during peak demand periods, even after the sun has set. Construction is underway with commercial operation expected in Q4 2023.

## HYDROGEN – GREEN HYDROGEN INITIATIVE PLANNED FOR SUEZ CANAL

**Egypt: Green Hydrogen Mega Project**

**Capacity: 650MW; 350,000 tpy**

**Developer: EDF Renewables**

**Expected: 2026**

The Green Fuel Alliance, led by EDF Renewables, is planning to develop a pioneering 350,000 tons per year (tpy) green ammonia facility to be used as bunkering fuel to service Suez Canal traffic.

It is also planning a 650MW of renewable energy solar PV and wind plant to power the ammonia production facility with green energy. The first phase of the project is planned to be operational in 2026, with the second phase expansion expected to be fully operational by 2030.

## WIND – SCALING UP: COMMERCIAL ONSHORE WIND PROJECTS INCREASING IN SIZE

**Egypt: Onshore Wind Project**

**Capacity: 1.1GW**

**Developer: ACWA Power**

**Expected: 2026**

Reflecting the increasing scale of wind energy and the growing appetite for commercial financing, ACWA Power in June signed a deal to build what will be one of the largest onshore wind farms in the world and the largest in the Middle East.

The US\$1.5bn project, led by an ACWA Power consortium, comprising Hassan Allam Holding, is forecasted to reach financial close by the third quarter of 2024 and be commercially operational by the end of 2026. It will mitigate 2.4mn tonnes of carbon dioxide emissions a year, and provide electricity for more than one million households.

## HYDRO – BIG HYDRO IS BACK WITH MOZAMBIQUE'S MPHANDA NKUWA

**Mozambique: Mphanda Nkuwa Hydro Project**

**Capacity: 1,500MW**

**Developer: Mphanda Nkuwa Hydroelectric Project Implementation Office (GMNK)**

**Expected: 2031**

The World Bank's International Finance Corporation recently threw its support behind the long-awaited US\$4.5bn Mphanda Nkuwa hydro project in Mozambique. It will comprise a dam, a power station, and a 1,300 km high-voltage transmission infrastructure from the project site in Tete Province, to Maputo, the national capital.

The IFC will now work alongside Mozambique's Mphanda Nkuwa Hydroelectric Project Implementation Office (GMNK) to structure the project, due on stream in 2031.

# AEF brings the energy community to Brussels

The capital of Belgium played host to Africa Energy Forum (AEF) 2022 as industry experts gathered to network, learn and power the industry forward.

The forum was kick-started with a welcome address from key sponsors Aggreko as Brano Kollar, MD for Africa at the company, suggested that to bridge the current access deficit, exploring the full spectrum of low-carbon energy is imperative. This was very much in line with the conference's overarching theme: 'Africa for Africa: Building Energy for the Just Transition' which was continually reflected throughout the numerous sessions over the next few days.

At one such discussion, hosted by GWEC, speakers explored the potential of wind power on the continent, a resource that despite early inroads into countries like South Africa and Kenya, has not seen the same growth in most regions across Africa.

Noting that wind has traditionally been seen as the "little brother" of solar, Linda Munyengerwa, regional industry director of infrastructure, Middle East & Africa at the IFC, explained the reasons why the resource has been underused. "Wind is more complex than solar and putting up panels is a little bit easier in terms of scoping the land and identifying where to put up plants. You generally have to do studies for less time which makes the timelines shorter. With wind, you must also consider biodiversity issues and environmental issues which is different from solar. In addition, you can't just shift an unsuitable site with the same ease you can with solar.

"The other main issue is being able to actually connect the wind to the transmission. In the past we heard wind was great but if you are in a mountainous area how do you actually connect it?

"So there were a lot of theories that were going on about wind and



AEF has earned a reputation as one of the most meaningful gatherings of decision-makers in the African energy sector.

Image Credit: Africa Energy Forum

very little in terms of study. But now we are beginning to get into the study, get into the detail and realise it is not as insurmountable as we thought it was. I think we are definitely going to start seeing a lot of increased activity in the wind space," Munyengerwa noted.

Following this, Jean-Pierre Sanchez Bernard, Africa business development manager, Siemens Gamesa, pointed out that there were success stories in Africa, such as the projects in South Africa and Morocco, which boast a reasonable amount of capacity and have very competitive tariffs. To replicate these, the representative from Siemens Gamesa suggested that stability was the most important factor as it means investors can be confident the conditions around the projects they are looking at will not change further down the line.

Building on this, with his experience in Egypt, Faisal Eissa, general manager, Egypt, at Lekela Power, said that, beside stability being key, what pushed things

forward in the country was a little bit of experience, money available to drive the project, starting up with set regulations and a map of the wind resources in the country completed to show the best locations for such projects.

Dheseen Moodley, managing director of Globeleq South Africa Management Services, added, "The crises that Africa has been enduring for a long time now is an over-reliance on one generation source which was accessible and easy to build. The decision should have been made to diversify the energy mix and think a little bit more about the security of supply. So, for me, it is the perfect time for wind to be playing a bigger role across many countries, even those with gas resources because security of supply is not just about what is available and at what price but how can the future unfold in a way that changes that position."

While the participants of the GWEC wind session were keen to look at diversification of Africa's

energy foundation through the development of wind, a large portion of the conference was given to solar – unsurprisingly so as the continent has around 40% of the globe's solar potential.

At a neighbouring session, Obbie Banda acting RLSF coordinator at ATI, commented, "One of the things we have historically seen on the continent is there are some very successful projects with a very successful concept but you don't see them replicated at the rate that we want to. In some cases one is delivered, but it takes another five to ten years before another similar one is delivered in the region."

To combat this, Banda argued that it is important to make the financing easy to replicate and agreements also – not just across multiple projects but across multiple jurisdictions. For this, lessons learned are essential but if this can be achieved, it will make it much easier to develop projects and progress from there. "The only way to achieve scale is to doing it in an



effective, efficient and sustainable manner.”

Across the four days, every energy resource was meticulously discussed and dissected to understand its capacity on the continent, from the traditional areas such as oil and gas to a relative newcomer with enormous potential – hydrogen.

### Youth make a mark

Hydrogen, however, was not the only newcomer attracting attention as AEF also launched (for the first time) EnergyNet’s YES! Youth Energy Summit – a platform for early career professionals, entrepreneurs, students and educators to boost skills, network connections and business readiness for the next generation of Africa’s energy leaders.

At one such session, energy professionals divulged their experiences starting out in the industry and provided advice for future members of the industry. Commenting on this, Anita Otubu, head of PMU, Nigeria Electrification Project, REA Nigeria, surmised, “You don’t have to be an engineer in order to work in the energy sector. I began in a law firm and ended up providing legal advice for the power section in Nigeria. Since then I have ended up heading one of the largest off-grid solar hybrid power plants in Nigeria.”

She noted that there were transferable skills from different schools of education and work experiences that were applicable for the sector and could ultimately provide a strong foundation for a healthy energy career.

This was advice which resonated and was repeated by Shakti Ramkumar, director of communications and policy, Student Energy, who added that she wished, when that she had completed some serious influence mapping and network mapping in the energy space when she began her career. “Not only who is working on certain issues but how effective they have been, what are the tangible impacts the different organisations have made and who holds the power in different sectors.”

Ramkumar, said that in her own experience this has proved incredibly enlightening and has really shaped her strategy and the strategy of her company to great effect.

### On the ground floor

While these invigorating sessions were being held around the conference hall, undoubtedly the nucleus of AEF was the exhibition floor which boasted a wide range of companies showcasing their solutions and offerings and relishing the chance to network with potential partners.

Such exhibitors included Scatec which presented the Release, a flexible leasing agreement of pre-assembled solar PV and battery equipment, securely integrated with power infrastructure. According to the company, Release guarantees effective equipment performance to ensure predictable power production, is quick and easy to deploy, produces 30% more power than traditional fixed systems at the

same installed capacity and is backed up by 24/7 remote monitoring, analysis and maintenance from a centre in Cape Town.

At the AMEA Power stand, associated employees were happy to discuss and explore their growing business which now operates 3GW of renewable projects avoiding nearly 6mn tonnes of CO<sub>2</sub> per year. AMEA Power has the capabilities to oversee projects throughout their lifecycle, from origination right through to operation and is committed to decarbonising the economy through the generation of wind and solar energy.

Attracting attention for their unique stand was Karpowership who showcased (with the help of on-site models) their fleet of Powerships. These floating power plants can be delivered in as fast as 90 days as a plug and play electricity solution and have already been installed in countries across the continent including Gambia, Ghana and Guinea-Bissau.

With the aforementioned, just one of the sea of exhibitors which covered the conference floor, it is fair to say there was something for all those involved in Africa’s energy sector.

### Striking deals

Amongst the hum of discussion pervading the conference was the sound of partnerships being formed and agreements being signed as several high-profile announcements were made on site.

Gridworks, a development and investment platform principally

targeting equity investments in transmission, distribution and off-grid electricity in Africa, led the way with the signing of an agreement with the Government of Uganda to develop a first-of-its-kind project to use private investment for the support and development of Uganda’s transmission sector.

Ruth Nankabirwa, Uganda’s minister of energy and mineral development, welcomed the agreement and said, “It is a pleasure to announce our pilot project with Gridworks that will bring new, private investment to Uganda’s transmission sector.”

Elsewhere, the International Finance Corporation (IFC) and Electricidade de Moçambique (EDM) signed an agreement to develop small-scale solar photovoltaic plants and battery storage facilities in Mozambique. Together, they set a target to develop four solar PV and battery storage facilities across the country with an expected energy production of 500MW.

Marcelino Gildo Alberto, CEO at EDM, commented, “This project signals the company’s effort in the search for sustainable solutions to accelerate universal access to Energy for all Mozambicans by 2030. In this sense, with the commitment to energy diversification, we hope to generate, in the coming years, 200MW in renewable energy. Likewise, with projects of this nature, EDM is at the forefront of the energy transition, in line with the Paris Agreements to reduce global warming.”

### All eyes on Nairobi

With another year of the AEF successfully wrapped up in Brussels, attention is already turning to next year’s iteration as EnergyNet eyes a return to Africa.

The 25<sup>th</sup> edition of AEF will arrive in June in Nairobi, Kenya, to once again celebrate one of the continent’s key industries and unite governments, utilities, regulators, finance institutions, commercial banks, power developers, technology providers, EPCs and more, under the African sky. ■

Image Credit: Africa Energy Forum



Attendees spent four days networking in Brussels.

# A call for clean energy investment

According to IEA's Africa Energy Outlook 2022, the global energy crisis is highlighting the urgency of accelerating investment in cheaper and cleaner energy in the continent.

**T**he IEA's report stated that the unstable situation in Europe has increased strains on African economies as the prices of food, energy and other commodities soared. For a continent already reeling from the impact of the pandemic, many positive trends have reversed and more than 4% more people are living without electricity in 2021 than in 2019. Utilities have struggled under the mounting financial difficulties which have increased the risk of blackouts and rationing.

In addition, although Africa contributes less than 3% of the world's energy-related carbon dioxide emissions, the continent is disproportionately affected by climate change which is worsening water stress, reducing food production, and increasing the frequency of extreme weather events.

Despite these challenges, the IEA report found that the global clean energy transition holds new promise for Africa's economic and social development. Renewables and emerging areas such as critical minerals and green hydrogen offer strong growth potential if managed well. Increased international ambitions for cutting emissions are helping set a new course for the global energy sector amid declining clean technology costs and shifting global investment patterns. African countries are poised to benefit from these trends and attract increasing flows of climate finance.

Fatih Birol, IEA's executive director, commented, "The new global energy economy that is emerging offers a more hopeful future for Africa, with huge potential for solar and other renewables to power its development – and new industrial opportunities in critical minerals



Image Credit: Adobe Stock

According to the IEA, the global clean energy transition holds new promise for Africa's economic and social development.

and green hydrogen.

"The immediate priority for Africa and the international community is to bring modern and affordable energy to all Africans – and our new report shows this can be achieved by the end of this decade through annual investment of US\$25bn.

"It is morally unacceptable that the ongoing injustice of energy poverty in Africa isn't being resolved when it is so clearly well within our means to do so."

The Africa Energy Outlook 2022 explored a sustainable scenario in which all African-related development goals are achieved on time and in full, including access to modern energy services by 2030.

At the top of the list for achieving this is to ensure affordable energy through increasing energy efficiency. Building codes and energy performance standards, which restrict the sale of the least efficient appliances and lighting, make up significant savings.

The IEA also indicated that expanded and improved electricity grids will provide the backbone of Africa's new energy systems and renewables can be central to this. With Africa home to 60% of the best solar resources worldwide and it

representing the cheapest source of power in many parts of Africa, solar is set to out compete all other source continent-wide by 2030.

While renewables will account for more than 80% of new power generation capacity added by 2030 in the sustainable Africa scenario the continent's industrialisation will rely, in part, on expanding natural gas use. More than 5,000bn cu/m of natural gas resources have been discovered to date in Africa that have not yet been approved for development and these could provide an additional 90bn cu/m of gas a year by 2030. Such an injection could be vital for Africa's domestic fertiliser, steel, cement and water desalination industries. In addition, if the cumulative CO<sub>2</sub> emissions from this were added to Africa's total today, it would bring its share of global emissions to just 3.5%.

The report also touched upon hydrogen where the continent's rich renewable resources are presenting a future of immense potential. A number of low-carbon hydrogen projects are underway or under discussion in Egypt, Mauritania, Morocco, Namibia and South Africa and are primarily focused on producing ammonia for fertiliser –

which will strengthen Africa's food security. Global declines in the cost of hydrogen production could allow Africa to deliver renewables-produced hydrogen to northern Europe at internationally competitive price points by 2030.

## Investment is the key

To achieve Africa's energy and climate goals, the IEA reported, there is a need to more than double energy investment this decade which would take it over US\$190bn each year from 2026 to 2030.

"Multilateral development banks must take urgent action to increase financial flows to Africa for both developing its energy sector and adapting to climate change," remarked Birol. "The continent's energy future requires stronger efforts on the ground that are backed by global support. The COP27 Climate Change Conference in Egypt in late 2022 provides a crucial platform for African leaders to set the agenda for the coming years. This decade is critical not only for global climate action but also for the foundational investments that will allow Africa – home to the world's youngest population – to flourish in the decades to come." ■



## Ballast Nedam to build five bridges in Conakry

Ballast Nedam International Projects will design and build five bridges in Conakry, Guinea, and also construct 12 km of access roads.

The project will improve access to the city's districts, increase economic opportunities for the inhabitants and provide quicker access routes to hospitals and other facilities. The steel bridges relieve traffic congestion on the highways and make it much safer to travel.

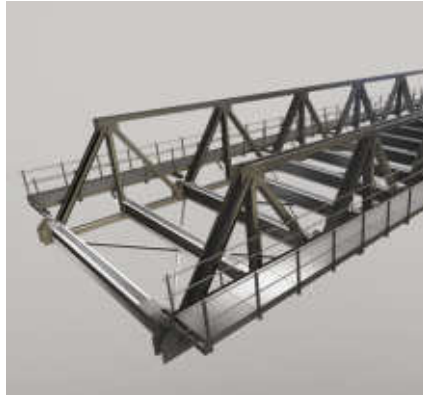
The bridges are build-up out of steel trusses with a length of 48 m and will have two lanes of traffic. The Kassonyah (96 m), Koroty and Demoudoulla (144 m) and Kissoos and Kakimbo (192 m) bridges will get a pedestrian path on both sides to ensure the safety of pedestrians.

"The project is a good example of combining Dutch sources to make a development project work", commented Erik Beekmans, director export & project finance at Ballast Nedam International Projects. "The comprehensive collaboration between the contractor and the funding entities Invest International Public Programs (grant) and the commercial loan from Invest International Capital based on the Cover of Atradius Dutch State Business resulted in a sustainable solution across the whole line for the client. As they benefit from European standards not only on technically but moreover on Environmental and Social construction working methods."

Beekmans continued, "This in combination with a very attractive lending scheme due to the granting element and the long tenor of the loan makes it a very good investment into the Guinean Infrastructure. We are confident we can make this partnership work for future African projects as well."

In addition to partnerships with Dijkstra International and Invest International, Ballast Nedam International Projects is working closely with the governments of the Netherlands and Guinea. This way, it ensures that care for the environment and the quality of life are paramount.

With environmental and social plans, it ensures that the impact of the construction work is as small as possible. This is continuously evaluated by an independent consultant. Moreover, Ballast Nedam International Projects is involving the local population in this project so that they can also contribute to this improvement in Conakry.



The bridges are built out of steel trusses.

Image Credit: Ballast Nedam International Projects

## SALVOKOP DEVELOPMENT LAUNCHED IN TSHWANE

Patricia de Lille, Minister of Public Works and Infrastructure, South Africa, has launched the flagship integrated Salvokop Precinct Development in Tshwane, South Africa, alongside Minister of Social Development, Lindiwe Zulu, and Minister of Home Affairs, Aaron Motsoaledi.

In a media statement, de Lille reported that the Salvokop flagship development will bring spatial integration and will be the first of its kind bringing government departments, business and mixed residential development into one precinct.

The Salvokop mixed-use precinct development includes the construction of five national government client departments to be permanently accommodated, with the finalisation of the StatsSA head office already achieved in 2016. The development will see the remaining four government head offices constructed in the precinct: the Department of Social Development and its agencies, the South African Social Security Agency (SASSA) and the National Development Agency, the Department of Higher Education and Training, the Department of Home Affairs and the Department of Correctional Services and Constitutional Development.

The precinct will be developed in three phases: Phase 1 (A and B) includes the installation of the bulk and internal infrastructure services and development of the four public private partnership (PPP) head office buildings; Phase 2 will be the development of the business even by the private sector; and Phase 3 is the development of the mixed-income residential component.

The construction of Phase 1A is currently in progress with a number of local residents and SMMEs from the nearby community already employed on the project. The works started in October 2021 and are expected to be completed by October 2023.

## KENYATTA KICKSTARTS CONSTRUCTION OF WORLD HEALTH ORGANISATION'S LOGISTICS HUB

President Uhuru Kenyatta of Kenya has launched the construction of the World Health Organisation (WHO) African regional operations and logistics hub in Kiambu Country.

Kenya is one of the three African countries (alongside Senegal and Nigeria) selected by the WHO to host a logistics hub that will be equipped with emergency medical personnel, commodities and equipment to support countries with emergencies in eastern Africa.

President Kenyatta commended WHO for the launch of the new innovative initiative to improve the capacities of African countries to respond, in real-time, to increasingly numerous and complex health emergencies. To facilitate the commencement of operations of the hub, Kenyatta said the Government has allocated 30 acres of land and committed US\$5mn towards the operationalisation of the hub.

## BRIEFS

Image Credit: Arkema



Vincent Legros, CEO of Bostik.

### Arkema acquires Permoseal

Arkema, a leader in specialty materials, has finalised the acquisition of Permoseal in South Africa, a leader in adhesive solutions for DIY, packaging and construction. Permoseal's brands will strengthen Arkema subsidiary Bostik's position in South Africa's and sub-Saharan Africa's industrial, construction and DIY markets. "This operation marks another step in Bostik's growth ambition," said Vincent Legros, chief executive officer of Bostik.

Image Credit: The Presidency of the Republic of Ghana



The ceremony was held at Manso, in the Amenfi Central District.

### Ghana begins Western Railway development

The construction of the Manso to Huni Valley stretch of the Western Railway Line has launched by Ghana's President, Nana Addo Dankwa Akufo-Addo.

The almost 78 km railway will become a major haulage line within Ghana and will help operations of the Ghana Railways Company Limited. It is expected to be completed in 42 months at a cost of approximately US\$504mn.

# Confidence in construction

While there are suggestions the construction market rebound is stuttering, confidence in one of Africa's most reliable industries remains strong in the eyes of most.

**A**ccording to a recent report published by *Construct Africa*, there has never been a better time for investors to enter Africa's construction industry as the continent boasts extensive natural resources, cheap labour, a fast-growing consumer market, and a diverse range of opportunities.

If judged by some of the positive headlines emerging from the continent, it is a promising time indeed.

For instance, the CME JV (Concor – MECSA Construction Joint Venture) has achieved another safety milestone on the Msikaba Bridge project after recording 2.5mn lost time injury (LTI) free hours earlier this year. This was notched up over the course of 1,000 days and is a “fantastic achievement” according to contracts director Laurence Savage.

Savage continued that the scope of JV's work includes using high density reinforced concrete, substantial bulk earthworks operation for the construction of the approach roads, a dozen large earthmoving machines handling cut-to-fill activities and a need for blasting – highlighting the magnitude of the safety achievement.

The JV team has now begun the



Image Credit: Scatec

Once operational, Scatec's project will have a total solar capacity of 540MW.

most difficult phase of the project – the construction of the pylon superstructure (entailing working to the 128 m height of the pylons) and the deck segment lifting activities which will result in the North and South banks connected mid-span across the gorge. The two major construction activities will be taking place simultaneously.

Elsewhere, leading renewable energy solutions provider Scatec ASA, has begun construction of the three Kenhardt projects in the Northern Cape Province of South Africa. Once operational, the project will have a total solar capacity of 540MW and battery storage capacity of 225MW/1,140Mwh, and provide 150MW of dispatchable power to the Kenhardt region. The project will be

the largest investment in Scatec's history with a total capex of US\$962mn.

Kenya Urban Roads Authority (KURA) has been making steady progress with the dualling of the Eastern Bypass. Construction progress is reportedly at 72% and, when finished, will significantly alleviate traffic congestion by connecting the Thika Highway and Mombasa Road.

Toyota Tsusho Corporation alongside Eiffage Génie Civil and water engineering company VA Tech Wabag has begun construction on a new seawater desalination plant in Dakar, Senegal, after receiving an order from Société Nationale Des Eaux du Sénégal (SONES). The project, scheduled to be completed

in 2025, will be capable of producing 50,000 tons of drinking water per day and is expected to greatly contribute to the improvement of the live of the Senegal population as well as the sustainable development of the economy.

Despite the seemingly endless stream of good news, there are calls for caution. In the 'International Construction Market Survey 2022' by *Turner & Townsend*, a more measured view is presented by highlighting how African countries, while showing significant signs of recovery after the pandemic, still need to restore GDP to pre-pandemic levels and that weakened construction activity has yet to fully bounce back. Most notably, construction values has fallen in Nigeria and approved construction plans have struggled to rebound after falling in South Africa in 2020. The situation is better in countries such as Rwanda and Kenya, but rising costs of construction around supply-chain bottlenecks and energy costs remains a constraint.

*African Review* reached out to some of the companies operating in this environment to find out how they are experiencing the market.



Image Credit: Concor Construction

The Concor-Mota Engil Joint Venture achieved 2.5mn LTI free hours on the Msikaba Bridge Project in May.



Image Credit: Concor Construction

The Msikaba Bridge project forms part of the new N2 toll road between Port Edward and Umtata in the Eastern Cape.



### Motheo Construction Group

Lettie Mashau, CEO of Motheo Construction Group (the largest black women-managed and led construction company in South Africa, commented, “The group’s success is against the background of a construction industry that has undergone a 50% contraction over the last decade, exacerbated by the Covid-19 pandemic. Despite these unprecedented challenges in a once booming industry, Motheo finds itself growing steadily year-on-year.

“Motheo has recently won tenders with Cellular provider MTN, for an electrical plant upgrade as well as governmental projects such as the building of Transnet Offices and a housing project with the KwaZulu-Natal Department of Human Settlements.”

To continue this strong form in the market Mashau continued, “Futureproofing our organisation is critical, and certain leadership strategies will help us in this task. Focusing on diversification, new markets and reorganising management structures is an important strategy. In the highly competitive construction industry in which I operate, service delivery is of utmost importance. Our new management structure will allow us to expand our presence and services within all nine provinces. We’ve taken a different approach in terms of our client selection and tapping into markets that represent



Motheo recently performed work for the Tshwane University of Technology in Gauteng.

Image Credit: Motheo Construction Group

significant growth areas in the construction industry value chain.

“We have embarked on a diversification strategy in order to achieve balanced growth across the board. Growth has its risks, but the right strategy can deliver stability, security and long-term profits. We have assessed our current strengths, weaknesses, opportunities and threats to our business we are well equipped to handle them.”

“We have the capacity to contribute to the infrastructure space and different construction sectors such as building and civil construction, electrical reticulation, fibre reticulation, residential accommodation for all levels of income, conventional building, mechanical works, fire systems and

water preservation. Over and above these sectors, we operate our own Academy, which provides training in a variety of forms to all participants in the projects. Considering our range of offerings within the group, we’re committed to make a meaningful contribution towards the company’s bottom line, and will form strategic pillars for its next level of growth,” Mashau concluded.

### Mace Group

Providing insights from its company, Simon Herd, regional director, sub-Saharan Africa at Mace, commented, “Investment in East Africa had picked up in late 2021 and early 2022. However, the Ukraine crisis has resulted in a sharp increase in construction costs, energy prices,

and other commodities. This has generally dampened business outlook and we’re monitoring the market closely.

“Currently, movement on mega projects in South Africa is slow. However, we’re very fortunate to be part of the largest commercial projects for the PIC on behalf of the Government Pension Fund. Our strongest sectors are data centres, social housing, hospitality and industrial.

“Like other construction markets around the world, we’re grappling with economic uncertainty and political instability which have the potential to dampen the outlook for construction output in East Africa.”

Herd continued, “Mace’s opportunity here is bringing international experience and knowledge to transform the standards to which projects and programmes are delivered. We’re working closely with the UK Government and the Department of International Trade to unlock much needed investment in vital social and hard infrastructure across African economies.

“Making strides in sustainability, health, safety and wellbeing as well as innovation are key trends and Mace is equipped with strategies on pushing the boundaries in project and programme management. We bring knowledge from other parts our business to improve practices and deliver efficiently.” ■

“In the highly competitive construction industry service delivery is of utmost importance.”

LETTIE MASHAU, CEO OF MOTHEO CONSTRUCTION GROUP



Mace completed work on the V&A Waterfront in Cape Town.

Image Credit: Mace Group

# CONSTRUCTION & MINING Buyers' Guide

Section One: Listings by Category

Section Two: Suppliers

Section Three: Agents & Subsidiaries in Africa

Please mention African Review  
when contacting your supplier

## Section One: Listings by Category

### AIR COMPRESSORS

CANTONI MOTOR S.A.  
Coelmo SpA  
JMG LIMITED

### AIR CONDITIONING

JMG LIMITED

### Asphalt Plant

Lintec & Linnhoff Holdings Pte Ltd

### Attachments and Accessories

Bobcat

### Backhoe Loaders

Bobcat  
JCB

### Batching Plant

Carmix - Metalgalante S.p.A.  
Jessop & Associates (Pty) Ltd.  
Lintec & Linnhoff Holdings Pte Ltd  
Vortex Hydra S.r.l.

### Block/Tile- Making Equipment

Jessop & Associates (Pty) Ltd.  
Vortex Hydra S.r.l.

### Breakers

Bobcat  
Fritsch GmbH Milling and Sizing  
Jubaili Bros

### BUILDINGS

Mytilineos S.A.

### Complete Solutions for Electrical Needs

JMG LIMITED  
Jubaili Bros  
Mytilineos S.A.

### Components and Accessories

IMECO Handelsgesellschaft m.b.H.  
Rossi S.p.A.

### COMPACTION EQUIPMENT

JCB

### COMPONENTS AND SPARE PARTS

Kirloskar Oil Engines Ltd.  
Rossi S.p.A.  
Wirtgen Group Branch of John Deere GmbH & co. KG

### Concrete

Bobcat

### CONCRETE EQUIPMENT

Bobcat  
Vortex Hydra S.r.l.

### Concrete Equipment - Other

Carmix - Metalgalante S.p.A.  
Jessop & Associates (Pty) Ltd.  
Lintec & Linnhoff Holdings Pte Ltd  
Vortex Hydra S.r.l.

### CONSTRUCTION VEHICLES

Bell Equipment Southern Africa  
JCB  
Volvo Construction Equipment  
Watermaster | Aquamec Ltd

### CONSULTANCY SERVICES

IMECO Handelsgesellschaft m.b.H.

### CONVEYOR SYSTEMS

CANTONI MOTOR S.A.  
Keestrack n.v  
Terex Minerals Processing Systems (Terex MPS)

### Cranes

CANTONI MOTOR S.A.  
CONDRA (PTY) Ltd  
Liebherr- Export AG

### Crushing, Screening and Washing

CANTONI MOTOR S.A.  
Fritsch GmbH Milling and Sizing  
Keestrack n.v  
Terex Minerals Processing Systems (Terex MPS)  
Wirtgen Group Branch of John Deere GmbH & co. KG

### DEMOLITION EQUIPMENT

Bobcat  
JCB  
Terex Minerals Processing Systems (Terex MPS)  
Volvo Construction Equipment

### Drilling - Other

IMECO Handelsgesellschaft m.b.H.

### Drilling Machinery and Plant

CANTONI MOTOR S.A.  
IMECO Handelsgesellschaft m.b.H.

### EARTHMOVING EQUIPMENT

Bell Equipment Southern Africa  
Bobcat  
J.A Delmas S.A.S  
JCB  
Liugong Dressta Machinery sp. z o.o  
Volvo Construction Equipment

### Earthmoving Equipment - Other

BEDELCO SPRL  
Liebherr- Export AG  
Liugong Dressta Machinery sp. z o.o.

### ELECTRIC

CANTONI MOTOR S.A.

### Engines, Components and Accessories

CANTONI MOTOR S.A.  
Jubaili Bros  
Kirloskar Oil Engines Ltd.  
Perkins Engines Company Limited

### Excavators

JCB  
Watermaster | Aquamec Ltd

### Generator Sets

Coelmo SpA  
Generac Mobile Products  
JCB  
JMG LIMITED  
Jubaili Bros  
Kirloskar Oil Engines Ltd.  
Mytilineos S.A.  
Visa S.p.A.

### Grinding Equipment

CANTONI MOTOR S.A.  
Fritsch GmbH Milling and Sizing

### Hoists

CANTONI MOTOR S.A.  
CONDRA (PTY) Ltd

### LIFTING EQUIPMENT

Bell Equipment Southern Africa  
CANTONI MOTOR S.A.  
CONDRA (PTY) Ltd  
HAULOTTE GROUP  
JCB  
Liebherr- Export AG

### Lighting Masts/Towers

Generac Mobile Products  
Jubaili Bros

### Loaders - Other

Bobcat

### Mechanical

Mytilineos S.A.

### Mini-Excavators

Bobcat  
JCB

### Mixing

CANTONI MOTOR S.A.  
Fritsch GmbH Milling and Sizing

### Mobile Mixing Plant

Bobcat  
Carmix - Metalgalante S.p.A.  
Lintec & Linnhoff Holdings Pte Ltd

### MOBILE POWER SUPPLY UNITS

Coelmo SpA  
Generac Mobile Products  
JMG LIMITED  
Kirloskar Oil Engines Ltd.  
Mytilineos S.A.  
Visa S.p.A.

### MOTORS/DRIVERS/ CONTROLS

CANTONI MOTOR S.A.

### Other Materials Handling

CONDRA (PTY) Ltd

### OTHER SITE EQUIPMENT AND MATERIALS

Bobcat  
Coelmo SpA  
Generac Mobile Products

### Piling

IMECO Handelsgesellschaft m.b.H.  
Watermaster | Aquamec Ltd

### Pneumatic

BEDELCO SPRL

### PUMPING EQUIPMENT

Visa S.p.A.  
Watermaster | Aquamec Ltd

### Pumping Equipment - Other

CANTONI MOTOR S.A.  
Kirloskar Oil Engines Ltd.

### Quarrying

Keestrack n.v  
Terex Minerals Processing Systems (Terex MPS)

### Recycling

Bobcat  
Fritsch GmbH Milling and Sizing  
Keestrack n.v  
Lintec & Linnhoff Holdings Pte Ltd  
Liugong Dressta Machinery sp. z o.o.  
Terex Minerals Processing Systems (Terex MPS)

### Rental Equipment

J.A Delmas S.A.S  
JCB  
Visa S.p.A.

### ROAD BUILDING EQUIPMENT

JCB  
Volvo Construction Equipment  
Wirtgen Group Branch of John Deere GmbH & co. KG

### Road Building Equipment - Other

BEDELCO SPRL  
Bobcat  
Lintec & Linnhoff Holdings Pte Ltd  
Liugong Dressta Machinery sp. z o.o.

### Scaffolding

Wilhelm Layher GmbH & Co KG

### Services

J.A Delmas S.A.S

### Silos

Lintec & Linnhoff Holdings Pte Ltd

### Site Dumpers

Carmix - Metalgalante S.p.A.

### Skidsteer Loaders

Bobcat  
JCB

### Telescopic Handlers

Bobcat  
JCB

### TOOLS

CANTONI MOTOR S.A.

### Trailers

BEDELCO SPRL  
Goldhofer Aktiengesellschaft

### Trenching and Pipe Laying

IMECO Handelsgesellschaft m.b.H.  
Liugong Dressta Machinery sp. z o.o.

### UNDERGROUND & MINING MACHINERY

Bell Equipment Southern Africa  
CANTONI MOTOR S.A.  
J.A Delmas S.A.S  
JCB  
Liebherr- Export AG

### USED EQUIPMENT

Bell Equipment Southern Africa  
IMECO Handelsgesellschaft m.b.H.  
J.A Delmas S.A.S  
JCB  
Visa S.p.A.  
Vortex Hydra S.r.l.

### WELDING EQUIPMENT

Coelmo SpA



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[info.lex@liebherr.com](mailto:info.lex@liebherr.com) • [www.facebook.com/LiebherrConstruction](https://www.facebook.com/LiebherrConstruction)





## Section Two: Suppliers

### BEDELCO SPRL

Rue de l'Environnement 22  
Seraing  
4100  
Belgium  
Tel: +32 4 3301860  
Fax: +32 4 3301866  
Web: [www.bedelco.com](http://www.bedelco.com)  
E-mail: [info@bedelco.com](mailto:info@bedelco.com)

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

### Bell Equipment Southern Africa

Griffiths Road,  
P.O. Box 25391,  
Boksburg  
South Africa  
Tel: +27 35907911  
Web: [www.bellequipment.com](http://www.bellequipment.com)  
E-mail: [stephen.mcneill@bellequipment.com](mailto:stephen.mcneill@bellequipment.com)

OEM manufacturer and distributor of heavy duty equipment for the mining and construction industries.

### Bobcat

PO Box 262688  
JLT Platinum Tower  
Cluster I, Level 18  
Office 1802  
Dubai  
United Arab Emirates  
Tel: +971509402136  
Fax: +971 4 2767204  
Web: [www.bobcat.com](http://www.bobcat.com)  
E-mail: [gaby.rhayem@doosan.com](mailto:gaby.rhayem@doosan.com)

Bobcat manufactures the widest range of market leading compact equipment including Skid-Steer and Compact Tracked Loaders, Backhoe Loaders, Compact Excavators, Small Articulated Loaders and Telescopic Handlers. The impressive selection of Bobcat attachments for use on these machines includes Wheel Saws, Trenchers, Planers, Hydraulic Breakers and Graders, saving time, effort and cost in carrying out an increasing range of applications throughout Africa.

### CANTONI MOTOR S.A.



3 Maja 28th street  
43-400 Cieszyn  
Poland  
Tel: +48 (33) 813 87 00  
Fax: +48 (33) 813 87 01  
Web: [www.cantonigroup.com](http://www.cantonigroup.com)  
E-mail: [motor@cantonigroup.com](mailto:motor@cantonigroup.com)

Cantoni Group is a global leader in manufacturing of electric motors, apparatus and tools with 100-year-long tradition. Cantoni Motor, the International Sales Office located in Poland, coordinates the sales and purchasing for the whole Group. We offer the full range of IEC asynchronous induction electric motors from 0,04 kW up to 6000 kW in standard and special executions as well as NEMA premium motors.

### Carmix - Metalgalante S.p.A.



Via A Volta 2  
Noventa di Piave  
Venezia, Veneto, 30020, Italy  
Tel: +39 0421 65191  
Fax: +39 0421 658838  
Web: [www.carmix.com](http://www.carmix.com)  
E-mail: [info@carmix.com](mailto:info@carmix.com)

Metalgalante is specialized on the manufacture of off-road self-loading mobile concrete mixers with over 30 years of experience. Our mixers are ideal for all job-sites where medium or small quantities of concrete are continuously needed during the day such as: sewage systems, water, telephone and electricity lines constructions, side road and low cost housing. In all those situation where ready mix system is not available and in all job sites which are not accessible to transit mixers. With our system, there is no waiting, no expensive, cost and quality of concrete is assured because the client can control the production directly.

#### Agents:

Angola - CI & MA Comp. Ind.  
Cameroon - Bernabe Cameroun  
Congo Brazzaville - Bernabe Congo Alucongo  
Cote D'Ivoire - Bernabe Cote D'Ivoire  
Ethiopia - Tri Machinery Trading & Rental PLC  
Gabon - Bernabe Gabon Libreville  
Ghana - HMD Forewin  
Morocco - SRM (S.A. SOCIETE DE REALISATION MECANIQUE)  
Mozambique - Sotema Lda.  
Namibia - Carmix Namibia Hire & Sales  
Senegal - Bernabe Senegal  
South Africa - Carmix South Africa

### Coelmo SpA

Via delle Industrie 278  
Agglomerato Industriale ASI  
80011, Italy  
Tel: +39 081 8039731  
Fax: +39 081 8039724  
Web: [www.coelmo.it](http://www.coelmo.it)  
E-mail: [sales@coelmo.it](mailto:sales@coelmo.it)

Coelmo is one of the oldest European manufacturers of industrial and marine generators from 3 kVA up to 4000 kVA. Based in Italy, with a large stock available to be shipped overnight to any destination in the world. Company profile products and modules are available online at [www.coelmo.it](http://www.coelmo.it).

#### Agents:

Togo - ADTF SARL

### CONDRA (Pty) Ltd



P.O. Box 752639  
Gardenvue  
Johannesburg  
2047, South Africa  
Tel: +27 11 776 6000  
Fax: +27 86 669 2372  
Web: [www.condra.co.za](http://www.condra.co.za)  
E-mail: [sales@condra.co.za](mailto:sales@condra.co.za)

Manufacturers of portal cranes, bridge cranes, cantilever cranes, hoists, end-carriages, single and double-girder overhead travelling cranes, crane components

### Fritsch GmbH Milling and Sizing

Industriestrasse 8  
Idar - Oberstein  
55743  
Germany  
Tel: +49 6784 700  
Web: [www.fritsch.de](http://www.fritsch.de)  
E-mail: [info@fritsch.de](mailto:info@fritsch.de)

Fritsch is an internationally respected manufacturer of application-oriented laboratory instruments:

- Sample preparation for size-reduction for all kinds of materials-dry or in suspension.
- Particle sizing by means of laser diffraction, dynamic image analysis and sieving.
- Sample dividing of dry and wet samples and controlled sample feeding

#### Agents:

South Africa - Labotec (Pty) Ltd.

### Generac Mobile Products

Via Stazione 3 bis  
Villanova d'Ardenghi (PV)  
27030  
Italy  
Tel: +39 0382 567011  
Web: [www.generacmobile.com](http://www.generacmobile.com)  
E-mail: [gmp.srl@generac.com](mailto:gmp.srl@generac.com)

Generac Mobile Products Srl is the leading European manufacturer of mobile lighting towers, dust control units, pumps, power generators and equipment for mining and construction sites. Generac Mobile Products is the dominant player in the European market, with a worldwide presence and continuous growth throughout the years.

### Goldhofer Aktiengesellschaft

Donaustrasse 95  
Memmingen  
87700  
Germany  
Tel: +49 8331150  
Web: [www.goldhofer.com](http://www.goldhofer.com)  
E-mail: [info@goldhofer.com](mailto:info@goldhofer.com)

Goldhofer is one of the world market leader for transport equipment in the field of general and heavy-duty road haulage and oversized cargo transportation. With a full and technologically mature range of products, Goldhofer meets an extremely wide variety of needs in almost every transport situation.

### HAULOTTE GROUP

Rue Emile Zola  
LORETTE  
42420  
France  
Tel: +33 (0) 4 77 29 24 24  
Web: [www.haulotte.com](http://www.haulotte.com)  
E-mail: [haulotte@haulotte.com](mailto:haulotte@haulotte.com)

Haulotte is a global leader of people lifting equipment. The group designs, manufactures and markets a wide range of products focused on mobile elevating work platforms. 7 People Lifting Equipment product ranges Customized financing solutions to facilitate investments in these products Integrated Services to optimize equipment lifecycles and residual values for resale

### IMECO Handelsgesellschaft

m.b.H.



Arbesbachgasse 26/5  
1190 Vienna  
Austria  
Tel: +43 1 328 9980  
Fax: +43 1 328 9944  
Web: [www.imeco.at](http://www.imeco.at)  
E-mail: [imeco@imeco.at](mailto:imeco@imeco.at)

New and used material, equipment and machines for infrastructure and civil engineering projects (shoring, piling, drilling, foundation and soil improvement) with more than 40 years experience and customers world-wide.

### J.A Delmas S.A.S



17 Rue Vauban  
Bordeaux  
33075  
France  
Tel: +33 5 56 79 62 00  
Web: [www.jadelmas.com](http://www.jadelmas.com)  
E-mail: [info@jadelmas.com](mailto:info@jadelmas.com)

A Caterpillar dealer for 90 years, JA Delmas is present throughout its Network in 11 West African countries : Benin, Burkina Faso, Cote d'Ivoire, Gambia, Guinea, Guinea Bissau, Mali, Mauritania, Niger, Senegal & Togo, with over 2350 employees. We provide full-range solutions to our customers in the following fields: Construction & Infrastructure, Mining, Energy Manufacturing & Services.

### JCB

J C Bamford Excavators Ltd.  
Roceter, Staffordshire  
England  
ST14 5JP  
United Kingdom  
Tel: 0800 083 8015  
Web: [www.jcb.com](http://www.jcb.com)  
E-Mail: [olga.kvokova@jcb.com](mailto:olga.kvokova@jcb.com)

JCB is the world's third largest construction equipment brand, has 22 plants on four continents. JCB is privately-owned by the Bamford family and was founded in 1945. The company is a world leading manufacturer of backhoe loaders, telescopic handlers, excavators, loaders, compaction equipment and generators. JCB's customer support network covers Africa, where we have been for 50 years and more.

#### African Agents:

All countries in Africa  
[www.JCBAfrica.com](http://www.JCBAfrica.com)

### Jessop & Associates (Pty) Ltd.

PO Box 265398  
Three Rivers, 1935  
South Africa  
Tel: +27 16 4212521  
Web: [www.protile.co.za](http://www.protile.co.za)  
E-mail: [info@protile.co.za](mailto:info@protile.co.za)

Manufacture and install PROTILE® concrete roof tile machinery and equipment and complete mixing and batching plants.



# YOUR REFERENCE PARTNER IN WEST AFRICA\*

>>> YOUR CAT® DEALER

TO SUPPORT YOU IN ALL YOUR PROJECTS:

MINING | CONSTRUCTION & INFRASTRUCTURES  
ENERGY, MANUFACTURING & SERVICES.

+ 50 000 <sup>m2</sup>  
Facilities

A network of  
+ 2 000  
people



2  Component  
Rebuild Centers

+ 1 600  
different models

23 000

Cat Equipment  
active fleet

ହେଁ ହେଁ ହେଁ ହେଁ

1 Regional  
Training Center



LET'S DO THE WORK.™

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JA Delmas



WWW.JADELMAS.COM

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## JMG LIMITED



25, Ologun Agbaje Street  
Victoria Island  
Lagos, Nigeria  
Tel: +234 7000112233  
Web: [www.jmglimited.com](http://www.jmglimited.com)  
E-mail:  
[marketing@jmglimited.com](mailto:marketing@jmglimited.com)

JMG is a diversified solution provider with a broad portfolio in power generation, electrical infrastructures, air compressors, elevators & escalators and HVAC solutions. With 20 years of experience in Africa and strong partnership with some of the world's leading brands, JMG combines global technologies and regional expertise to fulfill the development needs of the African market.

## Jubaili Bros

Jebel Ali Free Zone  
United Arab Emirates  
Tel: +971 4 8832023  
Fax: +971 4 8832053  
Web: [www.jubailibros.com](http://www.jubailibros.com)  
E-mail: [jbdubai@jubailibros.com](mailto:jbdubai@jubailibros.com)

Jubaili Bros with over 40 years of experience, is a leading provider of energy solutions in the Middle East, Africa & Asia. Jubaili Bros serves its customers by offering high quality diesel generating sets through 10 countries with 3 manufacturing plants and 29 branches & service centers that are dedicated to customer satisfaction.

## Agents:

Ghana - Jubaili Bros (Ghana)  
Nigeria - Jubaili Bros (Engineering) Ltd.  
South Africa - Jubaili Bros SA Pty Ltd.  
Uganda - Jubaili Bros (Uganda)

## Keestrack n.v

Taunusweg 2  
Munsterbilzen  
B3740, Belgium  
Tel: +32 89 515851  
Web: [www.keestrack.com](http://www.keestrack.com)  
E-mail: [info@keestrack.net](mailto:info@keestrack.net)

Keestrack designs and produces mobile screening and crushing equipment.

## Kirloskar Oil Engines Ltd.

13, Laxmanrao Kirloskar Road,  
Khadki, Pune  
Maharashtra  
411003  
India  
Tel: (+91) 020 25810341, 66084000  
Fax: (+91) 020 25813208, 25810209  
Web: [www.kirloskaroilengines.com/](http://www.kirloskaroilengines.com/)  
E-mail: [info@kirloskar.com](mailto:info@kirloskar.com) /  
[nikhil.rao@kirloskar.com](mailto:nikhil.rao@kirloskar.com)

Incorporated in 1946 Kirloskar Oil Engines Limited (KOEL) is the flagship company of the Kirloskar group. The company has a strong presence in international market including the USA, Middle East, South Africa & Asia. KOEL engines ranging from 4 to 1250 HP in air & liquid cooled versions that are best suited for applications including Fire Fighting, Power Generation, Industrial etc.

## Agents:

Ethiopia - Ultimate Motors PLC  
Kenya - Kirloskar Kenya Limited  
Malawi - HISCO House  
Morocco - El Midakhat Rotaxe  
Morocco - HIB Agricole SA

Nigeria - Bhojsons PLC  
South Africa - Kirloskar Engines South Africa (Pty) Ltd.  
South Africa - Kirsons Trading SA (Pty) Ltd.  
Sudan - CTC Group  
Tanzania - Incar Tanzania Ltd.  
Zambia - Saro Agro

## Liebherr- Export AG



General-Guisan-Straße 14  
Nussbaumen  
5415, Switzerland  
Web: [www.liebherr.com](http://www.liebherr.com)  
E-mail: [info.lex@liebherr.com](mailto:info.lex@liebherr.com)

The Liebherr Group comprises more than 140 companies in every continent of the world and employs a workforce of more than 49,000 people. In 2021, the Liebherr Group achieved a total consolidated turnover of more than 11.6 billion Euros. The Liebherr Group's Holding Company is Liebherr-International AG in Bulle, Switzerland, which is entirely owned by members of the Liebherr family.

## Lintec & Linnhoff Holdings Pte Ltd

71 Tech Park Crescent Singapore  
638072, Singapore  
Tel: +65 68631111  
Fax: +65 68633811  
Web: [www.lintec-linnhoff.com](http://www.lintec-linnhoff.com)  
E-mail: [info@lintec-linnhoff.com](mailto:info@lintec-linnhoff.com)

Lintec & Linnhoff is a global manufacturer and distributor of leading-edge solutions for the asphalt and concrete industries under the Lintec, Linnhoff and Eurotec brand names. Its products include asphalt mixing plants, concrete batching plants, pavement related technologies and machinery, and specialist concrete cooling solutions. The company's key technologies include Lintec's containerised asphalt and concrete batching plants built in 100% certified ISO sea containers and Linnhoff's screen drum technology.

## Agents:

Lebanon - Lintec & Linnhoff Maschinen Pte Ltd

## Liugong Dressta Machinery sp. zo.o.



Grabskiego 48  
Stalowa Wola, 37-450, Poland  
Tel: +48 501 802 802  
Web: [www.dressta.com](http://www.dressta.com)  
E-Mail: [info@dressta.com](mailto:info@dressta.com)

DRESSTA, headquartered in Stalowa Wola, Poland, is a global manufacturer of full line of crawler dozers and pipe layers. DRESSTA is redefining crawler dozer productivity and durability with its customer focused approach to design and manufacturing.

## Mytilineos S.A.

8 Artemidos Str.,  
Maroussi, 151 25 Athens  
Greece  
Tel: +302106877300  
Fax: +302106877400  
Web: [www.mytilineos.gr](http://www.mytilineos.gr)  
E-mail: [info@mytilineos.gr](mailto:info@mytilineos.gr)

MYTILINEOS S.A. is a leading Greek industry active in Metallurgy, Power & Gas, Renewables and Storage Development and Sustainable Engineering Solutions. Established in Greece in 1990, the company is listed on the Athens Exchange, has a consolidated turnover of

2.7 billion and employs directly or indirectly more than 4,820 people in Greece and abroad. MYTILINEOS' main field of expertise and performance in Africa is in Sustainable Engineering Solutions for Mining & Industrial Infrastructure, Thermal Power Plants, Hybrid Energy Solutions, Off Grid Solutions, Environmental Solutions such as water, liquid and solid waste management and treatment.

## Agents:

Ghana - MYTILINEOS S.A GHANA  
Nigeria - METKA | SUSTAINABLE ENGINEERING SOLUTIONS

## Perkins Engines Company Limited

Frank Perkins Way  
Peterborough, Cambridgeshire  
PE1 5FQ  
United Kingdom  
Tel: +44 1733 583000  
Web: [www.perkins.com](http://www.perkins.com)  
E-mail: [info@perkins.com](mailto:info@perkins.com)

A World-leading Supplier of off-highway diesel engines in the 4-2000KW market, Perkins has 90+ Years' experience of designing, building and servicing industrial power solutions. Working in collaboration with 800+ equipment manufacturers in the agricultural, construction and power generation markets, we tailor our engines to meet their needs and exacting standards.

## Rossi S.p.A.

Via Emilia Ovest 915/A  
Modena, 41123, Italy  
Tel: + 39 059 330288  
Fax: + 39 059 827774  
Web: [www.rossi.com](http://www.rossi.com)  
E-mail: [info@rossi.com](mailto:info@rossi.com)

Rossi is a global leading provider of Power Transmission Drives (Gearboxes and Gearmotors) with a high value/price ratio. Rossi has been developing its business in the most demanding applications, becoming one of the world's leading gearbox specialist in strategic segments, such as Mining, Metal, Plastic and Rubber.

## Agents:

South Africa - Rossi Southern Africa

## Terex Minerals Processing Systems



32 Farlough Road  
Dungannon Co. Tyrone  
Northern Ireland  
BT71 4DR  
United Kingdom  
Tel: +44 (0) 28 8771 8500  
Web: [www.terexmps.com](http://www.terexmps.com)  
E-mail: [mpsmarketing@terex.com](mailto:mpsmarketing@terex.com)

Terex Minerals Processing Systems provides a complete range of crushing & screening equipment to customers around the world operating in four key industries: mining, aggregates, demolition & recycling, industrial minerals. With over 100 years in the industry we understand your business and are dedicated to offering cost-effective solutions for the long term. "With a comprehensive static, modular and wheeled product range, Terex MPS has the solution, from single unit change outs to complete installations and EPC plants"

## Agents:

South Africa - ELB Equipment  
West Africa - PX Equipment

## Visa S.p.A.



Via I° Maggio, 55  
Fontanelle (TV)  
31043  
Italy  
Tel: +39 0422 5091  
Fax: +39 0422 509350  
Web: [www.visa.it](http://www.visa.it)  
E-mail: [visa@visa.it](mailto:visa@visa.it)

Visa S.p.A. is one of the world's leading gensets suppliers, based in Italy, designing, developing and manufacturing diesel gensets, from 9 to 3000 kVA, in standard or tailor-made solutions for a large variety of applications. It provides also specific equipment for the construction sector (such as mobile site pumps for dewatering and sewage). It is present in over 100 countries through a global network to support in the successful completion of projects through an efficient engineering department, guaranteeing a highly operational flexibility and qualitative standards for which it has become a leader in the market for more than 60 years.

## Volvo Construction Equipment

Bolindervägen 100  
63185 Eskilstuna  
Sweden  
Tel: +46 16151000  
Web: [www.volvoce.com](http://www.volvoce.com)  
E-mail:  
[Customercenter.eskilstuna@volvo.com](mailto:Customercenter.eskilstuna@volvo.com)

Volvo Construction Equipment (Volvo CE) is a leading international manufacturer of premium construction equipment, and with over 14,000 employees, it is one of the largest companies in the industry. Volvo CE offers a wide range of products and services in more than 140 countries through its global distribution network.

## Agents:

Algeria - SMT (Algeria)  
Angola - Auto-Maquinaría Lda. Auto Sueco (Angola) SARL  
Burkina Faso - SMT (Burkina Faso)  
Burundi - SMT (Burundi)  
Cameroon - SMT (CAMEROON)  
Congo Brazzaville - SMT (Congo)  
Congo DR - SMT (Congo DR)  
Cote D'Ivoire - SMT - Ivory Coast  
Egypt - Ghabbour Egypt  
Ethiopia - Equatorial Business Group Pvt. Ltd. Co.  
Gabon - SMT (GABON)  
Ghana - SMT (GHANA)  
Liberia - SMT (LIBERIA)  
Madagascar - Leal Equipements Compagnie LTEE (MADAGASCAR)  
Mauritius - Leal Equipements Compagnie LTEE (MAURITIUS)  
Morocco - SMT Morocco  
Morocco - SMT Morocco  
Mozambique - Babcock International (Mozambique)  
Nigeria - SMT Nigeria 1  
Rwanda - SMT (RWANDA)  
Seychelles - Leal Equipements Compagnie LTEE (SEYCHELLES)  
Sierra Leone - A. Yazbeck & Sons Ltd.  
South Africa - Babcock International (South Africa)  
Sudan - Al Barajoub Engineering  
Togo - SMT Benin (Togo)  
Tunisia - Nordic Machinery  
Zambia - Babcock International (Zambia)



### Vortex Hydra S.r.l.

Via Argine Volano, 355  
Fossalta di Copparo(FE)  
Italy  
Tel: +39 0532 879411  
Fax: +39 0532 866766  
Web: [www.vortexhydra.com](http://www.vortexhydra.com)  
E-mail: [vh.sales@vortexhydra.com](mailto:vh.sales@vortexhydra.com)

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

### Watermaster | Aquamec Ltd

PO Box 260  
27801 Sakyla  
Finland  
Tel: +358 10 402 6400  
Web: [www.watermaster.fi](http://www.watermaster.fi)  
E-mail: [watermaster@watermaster.fi](mailto:watermaster@watermaster.fi)

Cleaner, safer and better functioning waters with fewer machines and costs - The Amphibious Multipurpose Watermaster handles the work of many conventional machines. Watermaster does suction dredging, backhoe dredging, raking & pile driving. Watermaster cleans, restores and develops rivers, canals, lakes, industrial ponds and other shallow waterbodies

### Wilhelm Layher GmbH & Co KG

**Layher**

More Possibilities. The Scaffolding System

Ochsenbacher Strasse 56  
Güglingen, 74363  
Germany  
Tel: +497135700  
Fax: +49 71 35 70 0  
Fax: +49 71 35 70 265  
Web: [www.layher.com](http://www.layher.com)  
E-mail: [INFO@LAYHER.COM](mailto:INFO@LAYHER.COM)

Wilhelm Layher GmbH & Co KG, through its subsidiaries, manufactures and markets scaffolding systems. It offers modular scaffoldings, facade scaffoldings, event-systems for grandstands and stages, weather protection roofs, scaffolding claddings, rolling towers, and ladders. The company also provides scaffolding/protective systems, such as round scaffoldings, scaffolding decks, cassette roofs, lightweight cassette roofs, and scaffolding accessories. It offers its products through representatives worldwide. The company was founded in 1945 and is based in Güglingen, Germany. It has subsidiaries internationally.

### Wirtgen Group Branch of John Deere GmbH & co. KG



### WIRTGEN GROUP

Reinhard-Wirtgen-Str. 2  
Windhagen, 53578  
Germany  
Tel: +49 2645 1310  
Fax: +49 2645 131392  
Web: [www.wirtgen-group.com](http://www.wirtgen-group.com)  
E-Mail: [info@wirtgen.de](mailto:info@wirtgen.de)

The Wirtgen Group is an internationally active group of companies in the construction

equipment industry, comprising the brands Wirtgen, Vögele, Hamm, Kleemann and Benninghoven. Products include cold milling machines, recyclers, slipform pavers, surface miners, asphalt pavers, rollers, crushers, screens and asphalt mixing plants.

### Agents:

Algeria - T.P.S. SARL Tractor Parts Services  
Angola - Movicortes Angola - Equipamentos & Serviços, Lda  
Benin - WIRTGEN Group  
Botswana - WIRTGEN South Africa (Pty) Ltd. (Botswana)  
Burkina Faso - WIRTGEN Group  
Cameroon - Kanu Equipment Cameroun Sarl  
Congo DR - WIRTGEN Group  
Cote d'Ivoire - WIRTGEN Group  
Egypt - ACE Arabian Company for Engineering  
Ethiopia - Moenco (Ethiopia)  
Ghana - WIRTGEN Group  
Guinea - WIRTGEN Group  
Kenya - Panafican Equipment Ltd. (Kenya - Wirtgen)  
Lesotho - WIRTGEN South Africa (Pty) Ltd. (Lesotho)  
Liberia - Kanu Equipment Liberia Ltd  
Libya - WIRTGEN Libya J. C.  
Malawi - Machinery Spares and Trading Limited  
Mauritania - WIRTGEN Group  
Mauritius - UMCL Ltd. (Mauritius)  
Morocco - SMDM - Société Marocaine de Distribution de Matériel  
Mozambique - Movicortes Mosambique, Lda  
Nigeria - SCOA TRAC (Wirtgen)  
Portugal - Movier Equipamentos Lda  
Senegal - WIRTGEN Group  
Seychelles - UMCL Ltd. (Seychelles)  
Sierra Leone - Kanu Equipment Sierra Leone Ltd.  
South Africa - WIRTGEN South Africa (Pty) Ltd.  
South Sudan - Machine Afrik Co. Ltd.  
Spain - EMSA Maquinaria y Proyectos S.L.  
Sudan - Machine Afrik Co. Ltd.

Swaziland - WIRTGEN South Africa (Pty) Ltd. (Swaziland)  
Togo - WIRTGEN Group  
Tunisia - SOTRADIES  
Zimbabwe - Machinery Exchange (pvt) Ltd

### Zest WEG



6 Laneshaw Street  
Longlake Extension 4  
Johannesburg  
South Africa  
Tel: +27 11 7236000  
Fax: +27 11 7236001  
Web: [www.zestweg.com](http://www.zestweg.com)  
E-mail: [info@zestweg.com](mailto:info@zestweg.com)

Zest WEG, a subsidiary of leading Brazilian motor and controls manufacturer WEG, has a strong commitment to contributing to the development of the African region, and has been servicing the mining sector on the continent for more than 40 years. An in-depth understanding of the harsh conditions found within this sector and years of experience on the continent have ensured the Zest WEG service offering is fit-for-purpose. By leveraging best practice engineering and manufacturing capabilities, the group can offer a range of standard off-the-shelf products and end-to-end energy solutions.

### Agents:

Ghana - Zest WEG - Ghana Branch

## Section Three: Agents & Subsidiaries in Africa

### Algeria

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# Compressors serving construction

Greater concern for the environment and the ever-present need to save costs are shaping the air compressor market.

Image Credit: Adobe Stock



Across Africa air compressors are powering vital construction equipment.

Used for a multitude of applications across various industries such as agriculture, pharmaceuticals, textiles and of course construction, air compressors are one of the most critical pieces of equipment to businesses on the continent.

On construction sites across Africa, different types of compressors such as portable, towable and heavy duty power a wide range of tools and on-site equipment such as drilling machines, impact wrenches, grinders, sanders, nail guns, and more.

Due to their necessity, it is unsurprising that this is a market set for long-term growth. A report by *Strategic Market Research* predicted a CAGR of 3.9% for the industrial air compressors market and comparable reports have indicated growth of a similar nature. While the pandemic did disrupt this market, it has rebounded stoutly and has emerged with greater emphasis on energy consumption reduction and maintenance costs as companies seek to lower their

carbon footprint while saving as much capital as possible.

Of course, these rank alongside the need for a rough robust design so the compressor is capable of enduring tough conditions on site (such as heavy dust) and is capable of long continuous operations to power the various types of equipment. These are trends that suppliers of air compressors are all too familiar as they are reflecting in their sales patterns.

As a representative from Atlas Copco explained, it is the portability of its compressors which is making them stand out within an increasingly competitive market as they allow for flexibility and ease of access. Atlas Copco is leading the development and manufacturing of portable air compressors and, the

representative continued, its range is one of the first choices for customers due to its reputation of quality, innovation, industrial expertise and good aftermarket services.

It claims to have the ideal portable air compressor for any and all applications, no matter how tough the conditions. Within the African continent, its most popular machines are:

- **Small Air:** XAS88
- **Medium Air:** XAVS45, XAS400, XAS138, XAXS600, XRHS650, XAMS850
- **Large Air:** XRH1100, XRV1200, Y1300, X1300
- **Boosters:** B4-41/1000, B7-41/1000, B7-42/2175, B18-63TT/2175.

These pieces of equipment offer maximum fuel efficiency which

result in savings on energy consumption and costs – an indication of the key concerns dictating the market.

Another leading brand, CompAir, has similar considerations at the heart of its products. Its C Series range is designed to perform in the most demanding of conditions and can be used in a range of applications from high precision construction projects to drilling.

The C-Series is diesel powered which, despite electric being cheaper, gives it great versatility which is useful for many of the construction sites in Africa where a suitable electric power supply is not always at hand.

Despite this, alongside continuous innovations to ensure long life and ease of operations, CompAir is aware of the market trends. It has ensured that every model meets European emission standards that are outlined in directive 97/68/EC to not only protect the environment but staff working around the equipment as well. ■

“Air compressors are one of the most critical pieces of equipment on the continent.”

Construction companies are accelerating their digital transformation to drive innovation and efficiencies.

# An industry in revolution

Erika More, sales director, Sage Intacct Africa and Middle East, and Simbai Shutu, Africa sales manager - small segment at Sage, shine a light on the software that is increasingly underpinning Africa's construction projects.

## African Review (AR): How quickly has the digitalisation wave come over the construction industry?

**Sage:** Construction has long been perceived as an industry characterised by outdated technologies and archaic processes. However, that perception is changing fast as construction companies accelerate digital transformation in an effort to drive innovation and efficiencies.

Facing low margins, relentless price pressures and a shortage of skills, construction companies are modernising their processes. Emerging technologies such as building information management, drones, the Internet of Things (IoT), green building, artificial intelligence and 3D printing are starting to revolutionise the industry.

## AR: How is software being used by companies operating in the sector?

**Sage:** Construction companies are investing in specialist enterprise resource planning (ERP) and project management software to address their challenges around productivity, profitability, performance, labour, and technology. Today's integrated, cloud-based solutions can help construction organisations reduce costs and more accurately manage budgets across the most complex mega projects – enabling customers to quickly and easily create and track invoices, track cash flow, accept payments, record transactions, automate admin,

capture expenses, and much more.

A modern, mobile-first, data-driven business management platform built from the ground up by construction experts for construction experts can enable a construction company to take control of even the most complex construction projects, minimise cost overruns and protect project profitability using up-to-date work-in-progress data, captured directly out in the field.

It empowers people to collaborate from office to field and enables managers to make better decisions with more granular and up-to-date insights into all risks and costs of a project. Such a solution also provides visibility into costs and inventory across a construction company's value chain, which may span multiple sites, business entities and contractors.

At Sage, we have solutions for a diverse range of companies in the sector. For small contractors such as plumbers, electricians and repair/maintenance providers, we offer professional invoicing and accounting software like Sage Accounting. These businesses can use the cloud-based solution to quote, invoice and capture transactions on the go and retrieve accurate data in real-time.

A time-tracking add-on module enables small business owners to track their projects, capture their hourly rates and activities linked to those rates, which can help them be more competitive. Should a service

provider attend a site and not charge for the first hour, both the client and the service provider will be able to see this on the invoice.

Sage Intacct serves customers in the medium segment. The solution enabled a geotechnical engineering company to gain efficiency and visibility in its financial processes, without needing to hire. The company eliminated much of its manual data manipulation and saves more than 15 hours per month on reporting tasks. Sage Intacct also helped it streamline processes and shift 25% of bookkeeping time to strategic projects and to gain reporting granularity.

## AR: What are the benefits of incorporating it?

**Sage:** There are many, including:

- **Increasing productivity:** Digitalisation empowers construction companies to get more work done in less time, enabling them to maximise utilisation of resources and assets. This means for example that finance leaders can focus on the project and real-time decision making rather than getting tied up by manual financial analysis of Excel spreadsheets. Through Sage Intacct, you can receive custom reporting and insights through real-time dashboards personalised for users, departments and entities. streamlines processes across all projects, to create transactions in a way that meets your requirements, provides insight and

complies with regulations.

- **Cost efficiency:** Given that many tenders are primarily awarded on price, construction companies need to be as efficient as possible. Digitalisation and automation drive cost out of their processes. This allows for continuous consolidations and drill-down across entities, job sites, properties, etc.
- **Visibility for budgeting, forecasting and project planning:** Digital tech equips construction companies with real-time insight into their operations, which is essential given the complexity of the business and the time scales on which it operates. This means the modern cloud platform has the built-in flexibility that can assist the finance professional access reports and data anytime, anywhere.
- **Streamlined processes across all projects:** Our solution can streamline processes with integrated transaction workflow, whatever it is you sell and need to buy. And we will help keep your processes scalable when your business grows and you start selling other goods and services, do more business with your vendors, and have more employees using the system. This means that our system is also audit-ready.

## AR: Is Africa keeping up with these trends?

**Sage:** Africa's construction sector has been relatively slow on the



uptake when it comes to digital technology, partly because it often operates in remote areas with poor connectivity, and partly because many contractors are smaller businesses without capital to invest in high-end solutions. That picture is changing fast as the cloud makes tech more accessible and affordable.

Construction companies increasingly recognise that moving away from manual data capture and head-office legacy systems is key to empowering site managers and making better decisions. There is a growing demand for fully integrated cloud solutions that enable real-time enterprise planning, and related HR and payroll automation.

In the small business segment, many business owners use pen and paper to quote and invoice. This can be time-intensive and prone to human error when doing the books. However, for less than the cost of a



**Erika More, sales director, Sage Intacct Africa and Middle East, and Simbai Shutu, Africa sales manager - small segment at Sage.**

coffee per day, a small contractor operating in the construction sector can have a compliant financial cloud solution. For a medium segment entity, this is just as accessible as you cut out the cost of on-premises solutions as all data is securely stored and saved in the cloud.

**AR: What are some of the challenges that come alongside digitalisation?**

**Sage:** Skills is a key issue. Construction companies will need to



Image Credit: Sage

invest in robust change management and training programmes to encourage the adoption and effective use of business solutions, especially in environments where workers have not used business applications as a routine part of their jobs.

Construction companies may also have many point solutions in place, and work with disparate contractors and partners using a mix of new and legacy systems. It is essential to put in place modern, agile systems that

are designed for easier integration via application programming interfaces (APIs) to support collaboration and a more complete view of operations.

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# West Africa mining sector continues to pull in investment

Strong demand for gold, lithium and a host of other commodities means interest in West Africa's mining sector and its potential has never been greater.

**W**est Africa has long been one of the continent's mining hot spots and remains an important source of gold, iron ore, bauxite, uranium and diamonds.

That means it has attracted huge foreign investment over many years – and it continues to do so, presenting with it opportunity for leading equipment suppliers, contractors and consultants.

Strong commodity prices have been good to the sector, which has helped to fuel more investment in recent times, though the economic headwinds ahead are considerable.

That's a point noted by Rio Tinto in a July investor update, which stated that the waning global outlook and threat of recession had dampened prices for some of its key exports, including copper, iron ore and aluminium.

Though it is not active in West Africa, other mining companies, large and small, are facing up to the same economic realities.

One of the largest is AngloGold Ashanti, which



Ghana's famous Obuasi gold mine.

Image Credit: AngloGold Ashanti

is active in Ghana, Guinea and the Democratic Republic of Congo (DRC), among other territories.

What's apparent is that investments are still rolling in even in the face of economic uncertainty – especially in commodities such as gold, long seen as a safe haven during times of crisis.

At its established Obuasi gold mine in Ghana, the company is in the midst of stepping up production via a phased development programme. It announced in its 2021 full-year results recently that construction on phase two had now been completed, with a third phase currently underway. This will boost the mine's annual gold production to around 340,000 oz by the fourth quarter of 2022.

## Gold investment surge

Elsewhere in Ghana, junior miner Asante Gold recently announced the first gold pour from its Bibiani mine, which it acquired in 2021.

Its plans for the mine include refurbishment and upgrade of the process plant, tailings storage facility and general site infrastructure. Bibiani is a historically significant Ghanaian gold mine

situated in the Western North region of the country.

The project team featured a roster of local companies too, including Harlequin International, Rabotec, KPS, Kozah Construction, iConstruction, Emak, Electrowind, FLSmidth Ghana, Caesar Furnace, Mining Project Processing and Engineering Ltd, Top Quality Investments Ltd, Rand Sandblasting Company, Tesla Electricals, Multigeomatics, Knight Piesold Ghana Ltd, Bosch Rexroth (Ghana) and PW International (Gh) Ltd.

Canada-based Asante Gold is also now listed on the Ghana Stock Exchange, in a further commitment to the country.

Away from Ghana, another Canadian company, IAMGOLD Corporation, recently updated investors on drilling work at its Karita gold mine in Guinea.

Further work is planned in the latter half of this year with approximately 4,000 to 6,000 metres of additional drilling, as part of a 2022 delineation drilling programme. The results of this work will be used to develop a deposit model to support the completion of an initial mineral resource estimate planned for 2023.

The Karita exploration permit covers 100 sq km in Guinea, along the borders with Senegal and Mali. It is not far from the well-known Fekola Mine in southwest Mali, on the border with Senegal, about 500 km west of Bamako.

Here, operator B2Gold is currently mid-way through a 225,000 metre drill programme across western Mali – with a 2022 exploration budget of US\$35mn – covering the Fekola North deposit to further test its underground potential, and the Anaconda area.

If there is any economic uncertainty, it's certainly not yet apparent in West Africa's gold sector. Barrick Gold Corporation, another major producer in the region, said its own production is expected to increase through the year, amid a strong Q2 performance.



Workers at the Obuasi gold mine in Ghana.

Image Credit: AngloGold Ashanti



### Cameroon modular pilot project

West Africa has provided a rich stream of work for local and international contractors and has long been a testing ground for many new technologies. It has also provided ample scope to innovate and overcome many of the region's logistical hurdles.

In Cameroon, Multotec has been assisting recently with an exploration project in a remote area using one of its modular pilot plants to conduct small-scale testing on site. The containerised plant includes a range of Multotec's own equipment, including screen panels, cyclone rig and spiral rig.

The equipment is vital to achieving an accurate assessment of the deposit's viability, but the results also give the customer insights into how a full-scale plant should be designed if exploration results prove positive, notes Faan Bornman, technology manager: research and development at Multotec's technology division.

Drill samples from the prospect area are passed over the screen to remove oversized material, with undersize material going into a sump to be mixed with water to the correct density. The undersize material reports to the cyclone for de-sliming – the removal of very fine particles – delivering an underflow with an optimal size range of between 38 microns and 1 mm. This is fed to the spiral rig for concentration, with the spiral delivering a concentrate, middlings and tailings.

The process allows the operator to assess the project's economic heavy minerals portion, which is concentrated towards the inner section of the spiral.

### Resourcing the energy transition

It is likely that West Africa can also play a role in supplying the raw materials required for the ongoing energy transition worldwide. Whether that is a transition that is sustainable, given the

huge quantities of resources that will be required, is open to question, but there's little doubt some of the region's untapped deposits could begin to come into focus.

While most of the world's lithium – now one of the most in-demand commodities on the planet – is to be found in the Americas, there are substantial deposits to be found in Africa.

In West Africa, that includes Ghana, Mali and the DRC – in what is becoming known as a new lithium 'gold rush'.

According to a report by the British Geological Survey, there is clear potential for Africa's lithium resources to make a big economic contribution. But, it warns, this should be placed in the context of the wider supply chain – in particular, the potential for regional cooperation on refining and production of lithium chemicals.

Australia's AVZ Minerals is active in the DRC with its Manono lithium and tin project. The Roche Dure lithium deposit at Manono currently totals 402 MMt grading 1.65% Li<sub>2</sub>O and 715ppm tin, making it the largest and highest-grade undeveloped lithium mineral deposit in the world, according to US investment firm Cantor Fitzgerald.

AVZ is now reportedly on track for first production of spodumene – a pyroxene mineral and a source of lithium – by late 2023.

Western investors are, however, now competing for resources against Chinese mining companies, often with powerful state support from Beijing. China's Zijin Mining Group is also challenging for a share of the DRC's lithium potential, for example.

According to DRC officials, the country can grow to become an electric car champion supplying the raw materials for vehicle batteries – suggesting that more investment is ready to pour into West Africa irrespective of any external economic factors at play. ■



Heavy minerals exploration project using modular pilot plant at a remote site in Cameroon.

Image Credit: Multotec

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# Crushing competition

As the mining industry pushes on from the pandemic, companies are jostling to deliver the most effective and efficient crushing machinery while incorporating modern demands around the climate.

Improvement, growth and innovation. These are the drivers behind the latest re-brand from Terex Finlay which has sought to update its image based on its traditional core values and future strategies.

The business, which is to rebrand globally as 'Finlay' with a new logo, slogan and house style, is celebrating its 'strong heritage, strong future' and is making the changes to offer "a fresh and modern approach, yet familiar with our extensive history," according to Matt Dickson, global business line director at Terex Finlay.

He added, "Our product offering will forever evolve and expand to meet the needs of our customers. We already offer an extensive array of machines powered by hybrid technology and in the coming years we will further develop hybrid and electric powered equipment through our product road map based on the 'voice of customer' feedback that we have received.

"The new identity has been purposefully designed to be adaptable across both traditional, and new digital communication platforms. We are well placed for the future, focused on continuing our growth and strengthening our



The WJ3042 on display at Hillhead 2022.

brand. Our bold, new identity is a visual signifier of our position as one of the world's leading crushing, screening and conveying manufacturers and we are excited to deploy our products and services for the years ahead."

Innovation and improvement are certainly cornerstones of the crushers market, where consistent and fast-paced advances in technology are powering a competitive market.

Indeed, another brand of the Terex family – Terex MPS – has recently showcased some of its latest offerings in this space at Hillhead 2022. For instance, the all new WJ3042 high-capacity, all-electric wheeled jaw crusher plant was on display – designed to deliver and built to last. It is quick to set up and dismantle, easy to operate and is ideal for quarrying, mining, demolition and recycling applications. Incorporating a JW42 jaw crusher and a heavy duty vibrating grizzly feeder, the WJ3042 gives optimum production in a range of applications.

This was flanked by the TG120 Cone Crusher, the latest addition to the Cedarapids Cone Crusher Range. The new cone crushers can be easily and efficiently set up to perform and deliver the best cost per ton cubic product by selecting the optimum crushing cavity and eccentric throw to suit the application requirements.

To ensure its customers are suitably served for all their crushing



Willem du Plooy, regional business development manager - SSA for Terex MPS.

needs, Terex MPS has welcomed Willem du Plooy as its new regional business development manager – sub-Saharan Africa (SSA). South African born, du Plooy was raised in KwaZulu-Natal and moved to Gauteng where he started his crushing and screening career in 1995. Starting in the service department, he worked his way up to business management for some of the largest crushing and screening suppliers throughout the Africa continent. Having come full circle over the last 25 years, he is now responsible for building a powerful network of Terex MPS dealerships to service customers from the construction to mining sectors.



The TG120 Cone Crusher can be easily and efficiently set up.



All grinding parameters  
are set via display.



### Fine grinding

Indeed, new machinery is decorating the entire spectrum of the crushing market. At the smaller end of the scale, FRITSCH's premium Disk Mill has been introduced for efficiency fine grinding of hard-brittle to medium-hard solids. Ideal for medium particle sizes in the areas of mining and metallurgy, ceramics industry, glass industry and

more, the mill is now even easier to operate due to the moto-driven grinding gap adjustment with digital gap display and safer due to the automotive locking of the collecting vessel and grinding chamber.

In the disk mill, material is comminuted by pressure and shearing action between two counteracting grinding disks with coarse interlocking teeth and

ground material automatically falls down through the pre-set grinding gap into the collection drawer. The desired final fineness can be defined reproducibly by simply adjusting the digital setting of the gap width.

FRITSCH has targeted customer experience with its premium line to make daily work even easier and more efficient. Among the benefits is long service life for grinding disks as, through the handy control display, rotational direction of the disks can be easily changed, allowing for optimal compensation of abrasion behaviour.

### Sustainability incorporated

For many of the formidable crushing machines available, a robust engine capable of handling the demanding workload is essential. However, in recent years, it is not only power which is being taken into consideration when picking a

suitable engine pairing but carbon footprint as well – a concern being incorporated into the design of most solutions entering the market.

Most recently, this has been exemplified by Sandvik, a commercial and industrial equipment supplier that provides leading solutions for the mining, quarrying and construction industries, which has selected Cat C-Series engines for its mobile crushers and screeners.

Caterpillar has a long-standing commitment to sustainability and support for customers during the energy transition and its industrial engines have for many years been capable of running on a range of renewable and alternative fuels. The incorporation of C-Series engines means that Sandvik can power its mining and construction equipment on renewable and alternative fuels including

## Let's build Africa, with Terex MPS

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hydrotreated vegetable oil (HVO) certified to EN15940 or ASTM D975.

Sandvik successfully completed testing on their range of machines to confirm that they can operate with HVO without modifications to either the engines or the fuel tanks. The switch to HVO away from CO<sub>2</sub>-heavy diesel fuel will allow its customers to reduce their net emissions by up to 90%, marking a significant shift towards more sustainable business.

“We are focused on developing our products and services to help our customers transition to a low-carbon economy and fulfill our company’s purpose to help build and power a better and more sustainable world,” commented

Steve Ferguson, vice president of Caterpillar Industrial Power Systems. “Our Cat C-Series engines give customers the flexibility to use HVO as both a replacement and addition to their conventional diesel fuel, depending on their requirements.”

Jesper Persson, vice president of life cycle services at Sandvik Mobiles, added, “We are committed to using engineering and innovation through all our operations to make the shift towards more sustainable business. With a host of innovations in the pipeline, including electrification of our offering, we are excited to be pioneers in the industry and invest in renewable fuel sources and sustainable rock processing solutions.”

“We are focused on developing our products to help our customers transition to a low-carbon economy.”

STEVE FERGUSON, VICE PRESIDENT OF CATERPILLAR INDUSTRIAL POWER SYSTEMS



Image Credit: Caterpillar

Sandvik has chosen Cat HVO capable engines to reduce CO<sub>2</sub> emissions.

Kleeman is another leading brand setting out sustainability at the heart of its portfolio. The company’s EVO2 generation, comprising the jaw crusher MOBICAT MC110(i) EVO2 and the cone crusher MOBICONE MCO 90(i) EVO2, have been delivered to the market as an economic solution as well as promising high cost-effectiveness.

The crusher is driven directly via a fluid coupling in order to achieve high fuel-efficiency and conveying components, such as the vibrating feeder, double-deck prescreen or discharge conveyors are all-electric. A robust and easily accessible transmission guarantees efficient power transmission and operation in ECO mode can additionally reduce fuel consumption as well as

wear in idle phases.

The company has also taken steps to reduce noise pollution by having the cooling capacity controlled automatically and an optional noise protection package available for the jaw crusher.

As the mining industry pushes on from the taxing experience of the last few years, innovations which can boost capacity and efficiency at a low carbon cost are in high demand. Fortunately, the solutions providers operating in this sphere are up to the task and, with a string of industry shows on the way such as Electra Mining Africa, there will no doubt be a fresh batch of crusher innovations hitting the headlines – ready to meet the requirements of this critical industry and drive the competitive crusher market onwards. ■

## AR Controls looks to ride copper, cobalt and nickel wave

According to AR Controls, a leading importer and manufacturer of a comprehensive range of valves and instrumentation, the global mining industry on the cusp of a commodity super cycle, presenting a lucrative, and low risk market for valves in Africa.

“Copper has proven especially robust during a depressed financial market,” noted AR Controls managing director Julien van Niekerk. It has placed the spotlight firmly on the Central African Copperbelt, the largest copper and cobalt resource in the world, centred on Zambia and the Democratic Republic of Congo (DRC).

AR Controls is successfully undertaking major work in the DRC. “We had already made inroads into the DRC a decade ago when it was considered a difficult and closed market, and now it is one of the most favoured mining destinations on the continent, especially in terms of copper,” commented van Niekerk.

Apart from its ongoing expansion in Africa, AR Controls continues to extend its global footprint. This includes a strong focus on niche



Image Credit: AR Controls

AR Controls owns the IncoValve and Controls brand which it acquired in 2016.

markets in Africa, Australia and Pacific Islands, and South America. “Our international expansion is made possible due to our dual role as both a manufacturer and a stocking distributor, as well as the excellent supply-chain management we leverage globally,” remarked van Niekerk.

The impact of the Covid-19 pandemic on the mining industry in particular has been increased lead times. As the largest valve stockist of its type on the continent and possibly

even in the southern Hemisphere, AR Controls is hence in a unique position. “Having such a major inventory on hand is definitely a significant advantage against our competitors. Apart from supplying premium products, we also back this up with exemplary service,” highlighted van Niekerk.

AR Controls has been manufacturing the ARVALV range since 1999 which has proven highly successful and has achieved a significant market penetration in critical process applications in the mining industry.

“Looking at our current market share, it is not inconceivable for us to double this in the foreseeable future,” said van Niekerk. In addition to ARVALV, AR Controls owns the IncoValve and Controls brand, which it acquired in 2016, and is the exclusive African and Central American distributor for international OEM DeZURIK.

AR Controls will be present at Electra Mining Africa 2022 from 5-9 September at the Johannesburg Expo Centre.



# Fulfilling drilling demand

With the mining sector holding significant potential as the energy transition accelerates, drilling companies are bracing to meet the growing demand.

**T**he global mining industry, according to a recent report by PwC, registered a strong performance in 2021 which follows a, perhaps somewhat unexpected, impressive performance in 2020. The Top 40 global mining companies in the world posted stellar financial results last year with revenues rising by 32% and net profits soaring by 127%.

Looking ahead, the future of the industry is less clear with rising costs putting increasing pressures on margins. However, the looming energy transition is presenting a golden opportunity with critical and supporting minerals used to produce renewable and low-emission generators surging in demand.

This outlook is a welcome one for Africa, endowed with a wide variety of transitional minerals such as nickel, graphite, cobalt, lithium and coltan, on top of its substantial reserves of gold, iron, platinum, uranium, etc. As outlined by the Economist Intelligence Unit, the extraction of the continent's resources has often been hindered by weak domestic governance and policy impediments but this is a changing narrative with many African commodity exports having initiated procedures to create a business-friendly environment in order to attract investments into their domestic mining sectors.



Remote exploration drilling in the DRC, performed by T3 Drilling.

Image Credit: T3 Drilling

At this year's Investing in African Mining Indaba, this was a message propounded by each of the attending presidents from Zambia, Botswana and South Africa. The heads of state reported on their country's efforts to build environment's conducive for investment and build an industry befitting of its immense potential.

Each recognised that as the energy transition begins to accelerate, it is a critical moment for Africa's mining industry – a lifeline that could nourish it for years to come and maintain it as an integral industry within continent's economy.

The PwC report noted that the world will only be able to meet its net-zero targets if the mining industry can ramp up production which is putting a great emphasis on investments into exploration, production, processing and refining. At the heart of this revolution sits drilling – a significant component of the mining industry used for a multitude of purposes such as body characterisation, surface and underground blast hole drilling, underground roof bolting and cabling, dewatering and more.

## Developing demand

As countries across the continent continue to develop their mining sector and prepare to take advantage of the forthcoming demand surge, the need for drilling services will only intensify. The constant stream of announcements around drilling is testament to this. To name but a few examples from July: Tietto posted the results of its infill drilling campaign at AG South in Côte d'Ivoire; Centamin confirmed positive drill results across its portfolio in Egypt and West Africa; and Orion Minerals reported excellent results from its recently completed in-filling drilling which



Large diameter de-watering drilling in the DRC.

Image Credit: T3 Drilling

targeted the supergene mineralisation at the Prieska Copper-Zinc Project in South Africa.

It is fortunate, therefore, that the continent is bursting with companies who can draw on extensive experience and are ready to ride the forthcoming wave. One such company, T3 Drilling, provides specialised drilling and associated services to the mining and mineral exploration industry throughout Africa and prides itself on delivering results no matter how remote or challenging the site.

Its capabilities include surface coring, underground drilling, reverse circulation, air core, grade control, large diameter, mine de-watering, environmental monitoring, geotechnical drilling, production and community boreholes and blast holes and its fleet of rigs are supported by all-terrain vehicles and experienced professionals. As part of the Teichmann Group, it benefits from additional technical and logistics support on the ground and in administration through its established global infrastructure.

T3 Drilling has provided services to several respected global mining houses including First Quantum Mining (FQML), Phelps Dodge, Freeport McMoran, CMOC International, Barrick, Eurasian Resources Group (ERG), Glencore, Minerals and Metals Group (MMG) and Alphamin Resources.

Currently, it is performing exploration geotechnical drilling for Kamoto Copper Company; underground and exploration drilling for Bisie Tin Mine; underground drilling for Kamoia Copper SA; large diameter de-watering drilling for Chemaf Etoile; exploration drilling for Frontier Mines; and grade control and exploration drilling for Lumwama Zambia.

All of the company's operations are ISO certified 9001:2015, 14001:2015 and 45001:2018

and in the past 7 years it has achieved in excess of 5.5mn LTI free hours across all sites.

### Optimised drilling

The industry is also served by technology providers working to ensure drilling campaigns are conducted and completed as efficiently and cost-effectively as possible.

One such company, IMDEX is delivering drilling optimisation solutions which combine best-in-class technologies, sensors and motors to deliver improved performances. But, IMDEX optimisation general manager Charles Macfadyen explained to African Review, it is drilling fluids which are at the start of the value chain, maximising the data delivered from the company's technology and tools.

"Costs are always increasing, so the emphasis is on precision drilling: drilling smart metres and drilling efficiently. It all relies on fluids to be able to do that. Fluids are an essential part of the drilling process with the potential to unlock hidden productivity when used effectively."

In its third-quarter results, IMDEX reported increased demand for fluids in Africa and South America. It reported strong revenue growth in Africa, up 20% on the same time last year. The improved position was also reflected in global drill rig use figures compiled by IMDEX and released in April this year. The snapshot showed that coring and RC rig use in Africa was at 73%, against global rig fleet utilisation of 56%, up from 46% on the same time next year. Only Australia was ahead of Africa on rig fleet utilisation, at 82%.

IMDEX has around 100 drilling fluid products to cater for specific regional and global requirements, with the most recent addition being AMC BORE HOLE STABILISER (BHS) – a

“Costs are always increasing, so the emphasis is on precision drilling.”

**CHARLES MACFADYEN, IMDEX  
OPTIMISATION GENERAL MANAGER**

multifunctional product formulated specifically for air drilling applications, particularly drill and blast applications. Trials are underway with underground commercial prototypes in Africa, Asia, and Australia.

BHS helps to prevent a wide range of down-hole problems including poor collaring, hole decay or sidewall instability, provides a degree of lubrication to the hole and will improve the lifting capacity of the air stream for cuttings transportation.

Use of BHS in an underground mine in Western Australia resulted in an increase of up to 40% more metres drilled per day, reduced drilling consumables by up to 50%, improved load times and explosives use for explosive crews, and reduced HSE risks through less manual handling to mobilise and install casing.

"For drill and blast, the side wall is imperative for both function and efficiency," Macfadyen commented. "BHS delivers improved productivity while using less explosives and less redrills."

"IMDEX drilling fluids are much more than a fluid – you get the knowledge that comes from making premium fluids and understanding for more than 30 years, our understanding of the drilling market and rock knowledge.

"Others don't have that rock knowledge. It's the tangible knowledge that at any given moment in time you know what you're drilling through, the geological understanding, the resource definition, the granular knowledge behind how to optimise your fluids programme to cater for that. Whether it's orientation, mineralogy or any geological understanding it's the essential knowledge that you need to develop a fluid or optimise a drilling programme.

"Unlike others, IMDEX is able to leverage intimate rock knowledge, lab capabilities and global mud engineers to unlock the potential of any drilling programme. IMDEX is present in 70% of major mining operations globally and the knowledge that gives us is very powerful and it's why we are good at developing fluids and anything else tied to drilling and exploration," Macfadyen concluded. ■

IMDEX develops cloud-connected sensors and drilling optimisation products to improve the process of identifying and extracting mineral resources.



Image Credit: IMDEX



# Improving water security

With communities on every continent running out of water, desalination and effective re-use of waste water can offer ways of providing drinkable supplies.

**B**y 2030, demand for drinking water is projected to exceed supply by trillions of cubic metres, making latest desalination and water re-use techniques critical in helping meet demands. DuPont Water Solutions offers one of the most complete portfolio of products in this sector to customers around the globe and in Africa. Tim Guest, for African Review, spoke with the company's regional commercial manager, SSA (sub-Saharan Africa), Semano Sekatle, to find out more.

## African Review: How long has DuPont been active in re-use and desalination operations?

**Semano Sekatle:** DuPont Water Solutions has been supporting communities and businesses across the globe, including Africa, for more than 70 years, blending innovative technology and application expertise to develop solutions to the most complex water challenges; 95mn litres of water are processed every minute globally using DuPont technology.

As advancing technology continues to drive costs down and freshwater continues to become scarcer and

more expensive, more cities are looking to seawater conversion as a way to meet this demand. Investing in seawater reverse osmosis desalination makes long-term sense. Water Authority projections show the cost of this technology becoming more and more competitive and where desalination is the best option for municipalities, costs have been reduced with the help of technological developments.

## AR: Could you discuss DuPont's recent FilmTec Dry Seawater Reverse Osmosis development and the new Integrated Ultrafiltration process?

**SS:** Our Dry Seawater Reverse Osmosis is a unique solution to reduce the weight of membrane elements used for desalination. Conventionally, these membranes are factory tested and then shipped in a storage fluid. But this weighs an extra 4 kg per element. By creating a dry testing and storage capability, we save 4 kg of weight per element, meaning a significantly smaller carbon footprint of the sometimes-distant transportation to the point-of-use

and eliminating the need to dispose of the chemical storage liquid.

DuPont has taken a technological leap forward by becoming the first to successfully manufacture seawater membrane elements that can be shipped and stored without wet testing or wet storage.

In March 2021, we collaborated with Waterise to provide seawater reverse osmosis membranes for their subsea desalination plants. Subsea desal reduces energy requirements by 40% and presents a more sustainable and economical way to turn seawater to freshwater by leveraging the natural hydrostatic pressure found at the depths of the sea. It also requires up to 80% less coastal land than land-based plants.

As for ultrafiltration, this is an excellent separation technology for desalination pre-treatment, reverse osmosis pre-treatment, and wastewater reclamation, as well as for producing potable water. One of the most recent incorporations to our product portfolio is Integrated Ultrafiltration (iUF). This new-generation technology, which has been co-developed with engineering specialist Fluytec, combines the

screening and UF stages in a single pressure vessel and also minimises plant requirements.

## AR: Where are DuPont desalination and re-use systems used in Africa?

**SS:** DuPont Water Solutions is involved in many African projects to solve urgent water needs. Our UF and RO membranes are in use at several industrial wastewater re-use plants in 'Minimum Liquid Discharge Operations' at petrochemical plants in South Africa; mining operations in South Africa, Ghana, and Namibia; and at food and beverage applications across the whole of SSA. They are also used in municipal wastewater re-use applications at several municipalities in South Africa.

Between freshwater systems optimisations, wastewater re-use and re-purposing, as well as seawater desalination, an holistic approach is required. A balanced co-existence and application between all these will ensure sustainable water supply – this is what nations in Africa need to be looking at via collaborations between governments and private sector. ■



Semano Sekatle, regional commercial manager, SSA, DuPont Water Solutions.

Image Credit: DuPont Water Solutions

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While digital transformation can improve efficiency in the logistics sector, it can also introduce vulnerabilities if data security is not prioritised.

# Guarding against cyberattacks

Kate Mollett, regional director at Commvault Africa, explains how companies in the shipping and logistics sector can deploy ransomware recovery and ransomware protection to minimise loss from cyberattacks.

The shipping and logistics industry is increasingly a target of cybercrime and ransomware attacks, a trend that has accelerated in recent years. The reason for this is simple – these companies store and process a wealth of personal information that is immensely valuable, so a successful attack can be a highly profitable exercise. The damage these attacks can cause can be catastrophic to finances and reputation and companies, therefore, need to implement leading-edge ransomware recovery and ransomware protection to enable them to protect and recover data quickly, minimising damages and loss.

## An industry under siege

There are many examples of cyberattacks and data breaches across the shipping and logistics sector, from companies of all sizes. There were also several high-profile data breaches in 2020 and 2021, which have shone a spotlight on this industry under siege. In April 2020, Mediterranean Shipping Company was the victim of a malware attack that caused an outage to the company's website and customer portal. In June, global conglomerate Maersk reported a cyberattack that

caused in excess of US\$300mn in losses. CMA CGM was attacked in September, with a breach that impacted its peripheral servers.

This trend accelerated into 2021. In September, CMA CGM was hit again, this time with an attack targeting customer information. In November, shipping giant Swire Pacific Offshore (SPO) fell victim to a cyberattack that caused a significant data breach that resulted in the loss of confidential proprietary commercial information and personal data.

In December, US logistics company D.W. Morgan exposed over 100 GB of sensitive data on clients and shipments, including financial, transportation, shipping and personal details. Also in December, Hellman Worldwide Logistics was targeted by RansomEXX ransomware, and more than 70 GB of stolen data, including customer names, user IDs, email addresses and passwords, was leaked.

While these examples are of large multinational shipping and logistics conglomerates, cyberthreats affect providers of all sizes across the supply chain. A case in point is a malware attack on a third-party supplier for Canada Post in May 2021, which resulted in a data

breach impacting 950,000 parcel recipients. Another example is a ransomware attack on a small trucking company in the US, which could potentially have taken down the entire business.

The reality is that cybercrime does not discriminate based on size, and all organisations throughout the supply chain need to take the relevant steps to protect data and ensure the ability to recover from an attack. While digital transformation can improve efficiency in the logistics sector, it can also introduce vulnerabilities if data security is not prioritised.

## A multi-layered approach

Data security is a vital tool to protect against ransomware, and it needs to take the form of a multi-layered defence to guard on multiple levels, build on a zero-trust framework for advanced security, that should be flexible and scalable to meet digital transformation goals.

The first step is to identify, assess and mitigate risk exposure, including implementing tools like multi-factor authentication and dual authorisation. Data then needs to be locked and hardened, using air gapping and immutable copies of data, to reduce the attack surface

and better safeguard data. Clean backup copies help to minimise risk as well as the downtime associated with a data breach. Active monitoring and advanced threat and anomaly provide early warning alerts of suspicious and malicious activities.

Finally, consistent recovery processes need to be put into place across all data and workloads to restore wherever the data is needed. Solutions should also actively work to avoid ransomware file reinfections by deleting suspicious or unnecessary files from backups, isolating suspect backup copies, and enabling restoration to a safe location.

With the increasing number of attacks on the shipping and logistics sector, protecting data is essential. What is arguably more important, however, is the ability to recover quickly in the event of an attack. Extended downtime and continued exposure can end up costing millions, and the reputational damage can be severe, not to mention regulatory penalties associated with leaked personal information. Having an effective recovery strategy and the right tools in place is critical to protecting organisations in this vulnerable industry. ■

Image Credit: Adobe Stock



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