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Metito builds on record performance

Metito has made impressive strides in the water treatment and management sector, with its latest success in the region including the independent sewage treatment plant at Dammam West. Managing Director RAMI GHANDOUR speaks to *Gulf Construction* about the company's achievements in the Middle East.



Egypt's Al Mahsamma plant ... the largest of its kind in the world.

HAVING concluded a record year in 2019 in terms of both revenue and operational profitability, Metito is geared towards achieving a similar performance this year backed by strong order intake and major contract awards in various geographies, according to its Managing Director Rami Ghandour.

A global leader and provider of choice for total intelligent water management solutions, Metito has recently been making giant inroads into the waste water sector in Saudi Arabia, having clinched the key Dammam West Independent Sewage Treatment Plant (ISTP) Project, and is now bidding for similar projects in the kingdom.

Since breaking ground on the Dammam West site in February this year, work has continued without interruption on the project, Ghandour informs *Gulf Construction* in an exclusive interview.

"In June 2020, the project reached finan-

cial closure despite the evolving Covid-19 pandemic which has frozen several large-scale projects around the world," he adds with pride.

The Dammam West ISTP Project is a first-of-its-kind project to be awarded by the Saudi Water Partnership Company to investors under a build-own-operate-transfer model, with a tenor of 25 years. It was awarded in January 2019 to a consortium led by Metito Utilities together with Mowah and Orascom Construction.

The scope of work covers the entire project including financing, the engineering, procurement and construction, and operations and maintenance. The project will be executed by a wholly-owned Saudi-based company established by the consortium, the Dammam West Company for Water.

The plant has a designed capacity of 350,000 cu m per day with an initial capacity of 200,000 cu m per day. It will serve the western region of Dammam, providing additional water supply to local communi-

ties while creating new job opportunities to support the economic development of the country.

The plant plays an integral part in the plan set by the Ministry of Environment, Water and Agriculture to tender similar projects to investors in different regions across the kingdom. This is also in line with the kingdom's Vision 2030 and the wider initiatives approved by the Cabinet of Ministers to further encourage private sector participation in economic development initiatives.

Metito is now in the process of bidding for work on the Tabuk, Buraydah and Madinah STPs, with bid submission expected in December.



Ghandour ... eyeing another record year.

As bidding is currently under way on these projects, Ghandour says he cannot comment on the technology that will be used on the STPs.

"The Dammam West ISTP, however, is a good indicator of what is to come with advanced technology, sustainable optimised operations and service excellence," he continues. "In Dammam, we are using a unique combination of technologies and energy solutions: Moving bed biofilm reactor (MBBR) and anaerobic technology to generate the gas from plant sludge, solar and thermal energy.

"The plant will produce 90 per cent dry beneficial sludge – a first in Saudi Arabia. To achieve this, a large amount of energy is needed, for which we are using thermal energy and will also utilise solar energy – solar sludge drying system – as part of the process. This minimises external electric power and eliminates the need to use fossil fuel," Ghandour explains.

In Saudi Arabia, Metito is currently executing various desalination projects with a total design capacity of 800,000 cu m per day and wastewater treatment projects with total capacities of 400,000 cu m per day.

"It is worth noting that some of these projects are partially powered by solar energy," Ghandour adds.

Apart from Saudi Arabia, Metito has achieved commendable growth in the re-



Dammam West ... a key recent win for Metito in Saudi Arabia.

gion and globally over the past two decades. The company says it remains committed to playing an active role in developing the water and wastewater sector across the region, where it is leading several projects.

In the UAE, Metito is developing two important projects. These include the upgrade of the Sharjah Sewage Treatment Works Phase Four and Five, which was awarded by the Government of Sharjah's Directorate of Public Works.

Metito's scope is to more than double the capacity of the plants from 54,800 cu m per day to 130,000 cu m per day.

"This is a unique project as the full upgrade is being implemented whilst the plants are running at full capacity and without taking the plant offline," he says.

Partnering with the Ras Al Khaimah Government, Metito is also rehabilitating the Al Falaya sewage treatment plant. Metito's scope covers the initial water treatment stages and the expansion of the plant's capacity for future phases as well as the improvement of odour control and instalment of automated electrical boards.

So to what does Ghandour attribute Metito's outstanding success in the sector?

"We have worked tirelessly over the last six decades to create a diversified business from both a vertical and geographical perspective with a modus operandi of 'local presence, global know-how' - which has never felt more relevant," Ghandour remarks.

Metito's strength across the full spectrum of its industry, experienced leadership teams, strong financial capabilities, access to advanced technology, fully functional teams managing local projects with remote support in areas of design and engineer-

ing are core elements which contributed to building a resilient business model able to insulate its operations against specific-market downturns and to achieve commendable growth across the years, he points out.

"Sustainability as one of our core values is driving how we operate and intrinsic to every project we deliver. The projects, utilities and investments within our portfolio are rooted in long-term goals that focus on addressing the global issue of water scarcity and the need to further integrate alternative energy while safeguarding the environment," the managing director adds.

In the water management sector, Metito has operations covering three business arms: design and build, specialty chemicals, and utilities. It provides customised, comprehensive and advanced solutions across the full spectrum of the industry: from clean to dirty water; desalination and re-use; industrial solutions (up to hyper pure water); and investing in water and wastewater assets under different project finance structures.

The company also provides custom alternative energy development and management solutions for utilities and corporations looking to uphold sustainable operations by generating clean, emissions-free energy.

Metito has capacity-building capabilities and is focused on blending technology with engineering and consultancy in the areas that are key to a water utility. It offers integrated solutions and sustainable infrastructure asset management tools to support continuous optimisation and informed decision-making through access to global data (technical to financial). The company's tools and solutions are con-

stantly being developed and proprietary software continuously updated. Metito is also upgrading its services to include artificial intelligence (AI) solutions serving a variety of applications.

Looking ahead, Metito continues to pursue its formula for success and business continuity, which has enabled it achieve a record year in 2019 in terms of both revenue and operational profitability.

"We are geared towards achieving another record year in 2020 backed by strong order intake and major contract awards in various geographies," says Ghandour.

He continues: "To succeed and limit its vulnerability to disruptions, Metito has always committed to being long-sighted and sufficiently diversified. The company will continue investing in new technologies, accessing new markets and structuring new partnerships as we pursue leading mega fast-track desalination and wastewater recycling and reuse projects.

"In 2020, we executed multiple iconic projects, such as the award-winning Al Mahsamma agricultural drainage treatment, recycling and reuse plant in Egypt. This is the largest plant of its kind in the world, with a capacity of 1 million cu m per day. The project, developed by Metito-Hassan Allam Joint Venture, is worth \$100 million and has been developed under the supervision of the Armed Forces Engineering Authority in record time."

Developing water projects under different project finance structures in Asia and Africa is an area where Metito has strong experience. The company plans to continue working closely within its ecosystem to enable more of such sustainable, long tenor projects.

"As the water-energy nexus is becoming progressively critical, our experience in developing water public-private partnerships (PPPs) puts us ahead of the game as we expand into the alternative energy.

"In 2020, a Metito-led consortium was awarded Bangladesh's first international competitively bid utility scale (82 MW) solar project in Rangunia. The tariff achieved was the lowest-ever recorded in the country's energy sector and sets the path for a much more cost-effective energy supply in the country. We are confident that, in the future, Metito will add to this portfolio as the demand for more sustainable energy and water projects increases," he concludes. ■

Meeting green goals through water recycling

Water management and water recycling are prevalent issues that will only become more tightly regulated and monitored in years to come, says CDE Global, which offers efficient wet processing solutions to the quarrying and mining industries.



AquaCycle ... an efficient water management solution that ensures up to 90 per cent of the process water is recycled for immediate recirculation.

IT'S incomprehensible for most; the notion that around the globe we face issues arising from water stress on a planet whose surface area is made up of over 70 per cent water and whose total water volume – a staggering 96.5 per cent – is contained within our oceans. Whether for consumption or sanitation, clean water in some parts of the world is taken for granted, as we fail to recognise the processes and infrastructure needed to maintain a clean water supply or neglect to acknowledge that basic access to clean water is not universal.

In 2017, 785 million people lacked a basic drinking water service, including 144 million people who were dependent on untreated surface water, 206 million who had access to an improved water source but were required to make a 30-minute trip for collection, and 435 million who were extracting water from unprotected wells and springs¹.

While at the most extreme end of the scale more than two billion people live in countries experiencing high water stress², almost

two-thirds of the world's population experience severe water scarcity during at least one month of the year³.

Essential for life, water is also vital for economies and climate regulation. It is of utmost importance, therefore, that our water resources are protected – even regulated.

The mining and quarrying, manufacturing and construction sectors accounted for 10.6 per cent of total water use in Europe in 2017⁴. Developing technological solutions to tackle these mounting challenges is paramount for many materials processors seeking to boost the profitability of their operation by minimising the consumption of costly water resources.

The 2030 Agenda for Sustainable Development⁵, adopted by all United Nations member states in 2015, provides a shared blueprint for peace and prosperity for people and the planet, now and into the future. At its heart are the 17 Sustainable Development Goals (SDGs) with 169 associated targets and 230 indicators, which are an urgent call to action by all countries.

CDE recognises that the benefits arising from sustainable practice and processes are two-fold; they are economically advantageous and minimise our impact on the environment. Indeed, they are green from both perspectives. To that end, CDE has adopted number six of the SDGs: Clean Water and Sanitation.

COMMON CHALLENGES

The Middle East and North Africa (Mena) is home to 6.3 per cent of the world's population, yet only 1.4 per cent of its accessible fresh water supply⁶. Water scarcity in Mena involves multiple factors such as climate change leading to droughts and floods, low water quality, and poor water management in the context of fragility, conflict, and violence. This is why at the World Economic Forum 2015, experts on the Mena region stated that the water crisis is “the greatest threat to the region – greater even than political instability or unemployment”⁷.



Garg ... working to set the benchmark.

Innovations in the washing sector and the continued advancement of CDE's pioneering wet processing solutions are supporting quarry operators and materials processors alike to overcome the challenges stemming from water management: cost-based efficiency, sustainability and regulatory.

Commenting on the severity of water management challenges in the region, Ruchin Garg, CDE Regional Manager for Mena, says: “The Middle East and North Africa is the most water-scarce region on Earth and its total water productivity is half that of the global average,” according to data from The World Bank⁸.

According to data from the World Resources Institute, “Twelve out of the 17 most water-stressed countries are in the Middle East and North Africa”⁹.

“In a region where an incredibly high percentage of GDP is vulnerable to water stress, it's vital that an effective water management strategy is identified – and ours is an industry that can adapt to the call for better water management. The technology exists and CDE is working with many in the region to set the benchmark.”



CDE has 75 wet processing plants successfully utilising its water management and recycling technology in the Mena region.

WATER ECONOMICS

Water as a resource delivers economic value to a range of industries. Within the extractive industries, the value of materials is significantly increased when washed, but wet processing in mining and quarrying operations is hinged on water availability and processing plant efficiency.

Garg comments: "More often, it's water availability and access that prevents producers getting into the washing business in the first place – that, and the uncertainty around typical top-up water requirements which, in the case of CDE water management solutions, are very low. The focus is on recycling and recirculating as much water as possible through the system."

CDE consistently invests in research and development with the aim of enhancing the capabilities of its premier water recycling and management equipment. At the forefront of its water recycling systems is the AquaCycle, a single, compact, and user-friendly unit that can be applied to high and low tonnages across many markets.

Delivering competitive advantage to its customers, CDE's AquaCycle accelerates return on investment by maximising production efficiency, minimising the loss of valuable fines, and reducing water and energy costs.

An alternative to water extraction and the costly process of pumping water to the plant, CDE's AquaCycle is a highly efficient water management solution that minimises costly water consumption by ensuring up to 90 per cent of process water is recycled for immediate recirculation.

After the feed material has been washed and classified, waste is sent to the AquaCycle thickener tank. Here, a small amount of poly-electrolyte flocculant is added to the water via an automatic dosing station which forces

fine particles to settle on the bottom of the thickener tank. The clean water on the top overflows the weir and is stored in the Aqua-Store tank before being re-circulated around the plant. The result is a highly efficient water recycling system that requires only a 10 per cent supply of top-up water.

Waste sludge is discharged into a buffer tank where a motorised rake, in constant rotation, ensures the material does not settle and solidify. If further dewatering is required, a filter press or decanter is added to the wet processing solution to eliminate the need for settling ponds.

Garg says: "In Mena, we have 75 wet processing plants successfully utilising CDE water management and recycling technology."

INTELLIGENT DESIGN

Though water recycling may seem simple in

theory, it is, in practice, much more complex. Water thickeners are not born equal and their efficiency is the result of years of dedicated research, development, and refinement. Every aspect of its design is carefully considered so that the system is responsive to the site-specific needs of its owner.

"We sweat the small stuff," says Kevin Valletly, Director of Engineering at CDE. "CDE has been co-creating with customers for over 25 years to deliver collaborative, imaginative and unique processing systems, and this process has been informing and refining our water recycling technologies."

All CDE equipment is designed to allow plug-and-play operation; that is, the equipment is pre-wired and pre-tested before despatch, designed for rapid assembly and set-up and can start processing material within days of arrival onsite. These design considerations and factory acceptance tests significantly reduce installation time and accelerate return on investment.

He adds: "Fast return on investment is a very real proposition when the CDE AquaCycle thickener is introduced to a washing operation. It boosts the efficiency of the wet processing plant by maximising the settlement of solids which reduces the quantity of flocculant required, cuts running costs, and optimising the overall efficiency of the plant."

Return on investment with a CDE AquaCycle is typically achieved in just six to nine months.

Settling ponds are known to be the source of significant revenue losses, not only due to the high maintenance costs, site footprint, and downtime, but also because high-value fines can become lost and trapped at the bottom of ponds.

He continues: "By recycling up to 90 per cent of process water, the requirement for settling ponds is greatly reduced."



Fast return on investment is a very real proposition when the CDE AquaCycle thickener is introduced to a washing operation. It boosts the efficiency of the wet processing plant by maximising the settlement of solids which reduces the quantity of flocculant required and cuts running costs

Lanxess sells reverse osmosis unit to Suez

LANXESS, a global specialty chemicals company with a regional office in the UAE, says it has reached an agreement with French group Suez, a world leader in sustainable resource management, to sell its entire reverse osmosis (RO) membranes business.

The move is aimed at developing its portfolio and comes as part of its revamp strategy for water treatment technologies business, says the Germany-based company.

Lanxess will now focus on the ion exchange resins business and intends to grow here

primarily in markets for high-end applications.

On its key exit, Lanxess Chairman Matthias Zachert says: "The membrane business no longer fits in with our strategic focus on specialty chemicals. We are convinced that under the Suez umbrella, the business has the necessary conditions to develop its full growth potential in the future."

Lanxess, he states, expects the transaction to be completed by the end of 2020.

The membranes, which play an important role in the treatment of brackish and seawater, are manufactured by

Lanxess at its site in Bitterfeld, Germany.

With this deal, Suez will now take over this plant and the research facilities with all employees.

According to Zachert, Lanxess will further expand its ion exchange resins business. The company plans to build a new production facility, for which it intends to invest between \$80 million and \$120 million in the coming years.

"We invest in additional capacities for ion exchange resins in order to be able to meet the growing global demand. At the same time, we want to

grow especially in promising market segments," he states.

The new ion exchange resin plant will have a production capacity of between 20,000 and 30,000 cu m and is scheduled for completion within the next five years.

"With our applications for water filter cartridges, we are already one of the leading manufacturers. We are now additionally focusing on highly specialised applications that are characterised by high demand and strong growth," remarks Bettina Blottko, the head of the Liquid Purification Technologies business unit at Lanxess. ■

"With the addition of a filter press tailings management system that need is completely eliminated. When combined with a CDE filter press custom-built fines management system this figure increases to 95 per cent, removing the need for settling ponds altogether."

LONG-TERM BENEFITS

Water management systems are becoming a must-have for mine and quarry operations to comply with environmental regulations. Matters concerning the protection of finite resources on the planet will only become more prevalent, too.

"The benefits of the CDE AquaCycle significantly outweigh their initial investment; not only for the short period until return on investment is achieved, but for the preparedness it offers. Water management and water recycling are prevalent issues that will only become more tightly regulated and monitored in years to come. The AquaCycle ensures operators stay ahead of the curve while extracting maximum value from available resources and driving down operating costs," Vallyelly concludes.

The AquaCycle system is available to op-



An AquaCycle installation in Tunisia.

erators around the world and is ready to complement wet processing applications in five sectors – sand and aggregates, mining, construction and demolition waste recycling, environmental applications, and industrial sands.

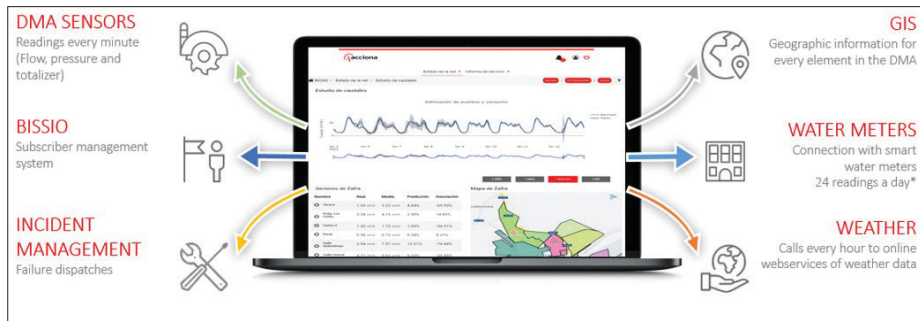
*CDE is a leading provider of wet processing equipment for quarries, mines and recycling operations on the global market. Its equipment has applications across a wide range of materials and is delivering significant efficiencies in the construction and recy-

cling (CD&E), mining, industrial sands and environmental sectors. Working across five sectors and eight regions globally, CDE has been co-creating with customers for over 25 years to deliver collaborative, imaginative and unique processing systems. Headquartered in Northern Ireland, its office in Dubai, UAE, serves the Mena market. ■

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Smart platform boosts network efficiency



BIONS offers a comprehensive in-depth vision of the water supply network.

IN line with its commitment to achieving efficient integrated water cycle management, Acciona has launched BIONS (Business Intelligence of Network Solutions), a cloud-based data intelligence platform.

The platform integrates several sources to provide value-intelligence to the business and improve the management of the water supply system through water efficiency, says Julio Ratia, Acciona O&M Middle East Director for water solutions.

BIONS offers a comprehensive in-depth vision of the service and the water supply network as well as the “health” of the network itself, with the aim of recording all events taking place in the supply network.

“It integrates several data sources: smart water meters for domestic use, district metered area (DMA) sensors, management systems for users and incidents, tank levels, GIS, meteorological data or calendar variables. The result is a platform with a graphic and mobile interface, where you can view what is happening in the water distribution network in real time,” he explains.

Its architecture comprises the following modules: data intake, cloud gateways, data lake, algorithm and machine learning management, and visualisation. This centralised information is later used in decision-making, as well as to define strategic actions and practices that optimise the performance of facilities.

Ratia says this new tool helps to understand the network operations better, optimise supply planning and service levels and thereby ensure the best water access for citizens. “One of the main objectives

of BIONS is to improve response times to leaks, breaks and pressure failures in the water supply network. To do that, the platform manages and shows all the information that helps to prevent and avoid important water cuts as well as identify the causes of dirty water complaints or issues with the supply, among others. Ultimately, it allows identifying failures in the facilities before they occur,” he adds.

This apart, BIONS performs analysis and management of water levels in tanks and deposits. This way, it can track the status of events (pressures, tank levels, etc) and anomalies from the beginning, thus ensuring enhanced water services for users.

PREDICTIVE MODELS

“Furthermore, thanks to the use of artificial intelligence (AI) and machine learning technology, BIONS enables going one step further, anticipating leaks and other anomalies, predicting the demand by tracking patterns and trends and solving supply problems in a preventive manner,” Ratia says. “For example, the demand can be predicted based on an estimate of the minimum night flow rate; non-revenue water can be analysed based on algorithms to calculate the water balance by district.”

Incorporating AI enables going even further in terms of the analysis and management of services and water facilities. With BIONS, data are turned into knowledge and predictive actions that achieve savings, thanks to the early detection of hidden or underground leaks, improving response times to leaks, breaks and incidents in the water supply network, and ultimately en-

suring greater water service efficiency.

“It is a step beyond the classical approach focused on mathematical solutions and daily operations planning, towards a new model based on the recognition of patterns and machine learning,” he remarks.

ADVANTAGES

BIONS offers advantages in terms of efficiency of the operations and maintenance of the network, shortening the cycles of repair and incident resolution, Ratia claims. It is a multi-channel platform, which can be accessed and operated from mobile devices, tablets and personal computers.

“Because it is cloud-based, it is fully scalable and can grow in parallel with the technological evolution of the network and the systems installed. Another important aspect is its flexibility, since it can be implemented in systems with different levels of technological development and different control and sensor systems.

“The tool can be adapted to the information existing in each service. On the other hand, the integration of the BIONS platform with the GIS positioning system has the advantage of providing a user interface based on a hydraulic model of the network, something that guarantees that the user experience will be swift and adoption easy,” he explains.

CYBERSECURITY

“The BIONS cybersecurity architecture ensures not only protection from potential attacks to service remote control systems (industrial security), but also the security of data (industrial and transactional), of the IT network, and of the cloud platform,” Ratia points out.

Cybersecurity risks are successfully reduced taking into account security criteria from the platform design phase, through the implementation of a comprehensive security architecture concept, integrating appropriate technologies and subsequent improvements in processes and measures dealing with the organisation, access and users’ roles in systems.

The end goal for BIONS is to be a smart management platform for all of Acciona’s water supply services, he adds.

“BIONS is not just technology or digitalisation, it is an initiative that provides real and tangible benefits to the business and, as ultimate beneficiaries, citizens receive a better service,” Ratia concludes. ■