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Companies that are not represented in their own industries are seeking support from the Aggregate and Sand Producers Association (Aspasa), which is amending its Constitution to include membership applications from key salt, dimension stone, rubble, ash suppliers and RCA handlers.

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Illegal sand mining along the banks of the Msunduzi and Umgeni Rivers between Pietermaritzburg and Durban is posing an increasingly serious environmental threat. Unregulated and unchecked illegal sand mining is considered a serious problem in this province.

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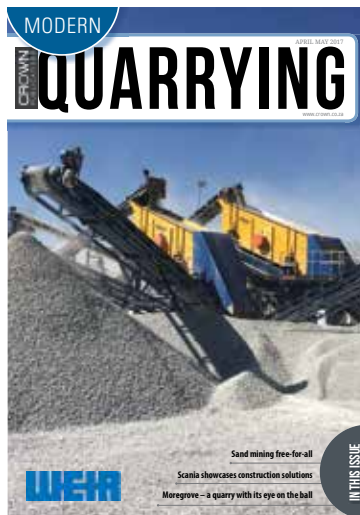
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The recently-held Scania Construction Day in the Western Cape which was well attended by customers and targeted customers, gave the company the opportunity to showcase and create awareness of its unique solutions for the construction sector.

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A household name among the big players in the mining sector, Weir Minerals has, in recent years, also developed a keen following among smaller, independent operators in the quarrying industry with its focused range of Trio® comminution products and expert market support. With arguably the widest product range in the sector, the company is able to offer complete plant solutions in aggregate. See full story on page 10.



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Time for legal recourse against illegal miners

MQ has often reported on illegal sand mining operations around the country and has lately focused on areas in KwaZulu-Natal. It seems as if the Department of Mineral Resources is battling at the moment in terms of resources and people on the ground. If this is the case, it is time that all affected stakeholders get together for a very serious discussion on the way forward; with or without the assistance of the DMR authorities.

To date there are over 200 illegal sand mining operations in KZN and the Eastern Cape alone, the majority of which are utilising open pit methods to extract sand directly from main river channels and adjacent sandbanks, estuaries and coastal dunes.

According to Romy Chevallier, a senior researcher at the South African Institute of International Affairs (SAIIA), natural sand from estuary and coastal land is one of SA's most valuable resources. However, there has been a drastic increase in controlled and unauthorised sand mining activities throughout the country.

She says the frameworks governing small-scale sand mining in the country lack the necessary financial and human resource capacities to support better environmental compliance, and the enforcement mechanisms to successfully deter illegal activities are weak.

For this reason, there has been a flurry of new entrants to the sector creating a system fraught with social, environmental, legislative and structural challenges; and existing policy and management responses do not have the urgency required to prevent the irreversible destruction of riverbeds and associated estuarine zones.

MQ is aware of government's attempt to set up a joint compliance and enforcement project in illegal sand mining, but a much more co-ordinated enforcement strategy is desperately needed. As Chevallier says: "It is imperative that this sector is better regulated to conserve the limited resource; to permit its ordered and sustainable exploitation; and mitigate the associated environmental impacts.

The DMR has national jurisdiction over the regulation of sand mining. The key national statute, the Mineral and Petroleum Resources Development Act of 2002 (MPRDA), places all mineral resources in SA, including natural sand under the custodianship of the State. Any person wishing to extract sand must apply to the State for the right to do so and the Act sets out a regulatory regime governing the exploitation of the resource, applied through the administration of various rights and permits.

"Better enforcement is needed to discourage illegal activities and eventually prohibit the

extraction of all river and estuarine sand, while seeking other sources of sand from the construction industry," Chevallier says.

There is a need for a more comprehensive national inventory of legal operations – and not the outdated information that is currently available on the official database.

SA's mining legislation requires mining companies to include detailed monitoring plans in their EMPs. Although larger companies generally have well-developed plans and implement these, this is not always the case with smaller operators. All of which is exacerbated by the DMR's restricted capacity to enforce EMPs and issue penalties for non-compliance; and further complicated by difficult procedures, complex requirements and a dearth of resources particularly in provinces and municipalities.

Chevallier says some clarity is still needed regarding which department is ultimately responsible for regulating the environmental aspects of mining. Between 2008 and 2012 substantial amendments were made to mining legislation in SA. The 2008 amendments to the 2002 MPRDA sought to align its environmental requirements with those of the National Environmental Management Act of 1998 (NEMA), in order to create one environmental management system for mining. The 2008 agreement sought to repeal all the mine environmental management provisions in the MPRDA and transfer them to the NEMA.

In 2012, the MPRDA was further altered in pursuit of a single environmental approval process for mining, with the State hoping to streamline regulatory processes and licensing systems for mines' environmental management with the DMR, DEA and DWA. All of which is very confusing with environmental NGOs questioning the objectivity of a mining authority issuing environmental authorisations. They are concerned that the DMR is both the referee and the player in this process.

Illegal mines should be closed immediately with estuary and riparian sand halted. It is time that legal action is taken to stem the increase in illegal aggregate and sand mining activities which are being carried out in the coastal dunes and river beds and elsewhere in the country; something that MQ hopes is on the cards.

For further information on the illegal dune sand mining in KZN and the Eastern Cape, visit [Illegal West Coast Sand Mining on Facebook](#).



Romy Kelly

Mining lessons – good and bad

Signs of hope – visible in some commodity prices and increased exploration drilling – lent an upbeat tone to the recent Investing in Africa Mining Indaba held in Cape Town. However, South Africa has some sobering lessons for those African countries that were present, which have yet to fully launch their mining sectors.

SRK Consulting partner and principal consultant Andrew van Zyl highlighted the importance of constructive dialogue and engagement between mining companies and key stakeholders like government and communities – warning that SA had still to improve its performance on this score. “Many African countries are at this event to leverage their mineral resources as a catalyst for broader economic development. To do that effectively needs a strong relationship between the public and private sector – to build trust that will endure through the demanding but inevitable commodity cycles.”

He said the discussions at the Indaba about SA were often quite different to those about the mining future of most other African states. “While SA is concerned mainly with sustaining an ageing industry – with its attendant challenges of productivity, viability and competitiveness – most of the continent must address issues like infrastructure, logistics and developing mining codes. In either context, though, good leadership among stakeholders is vital to a successful outcome.”

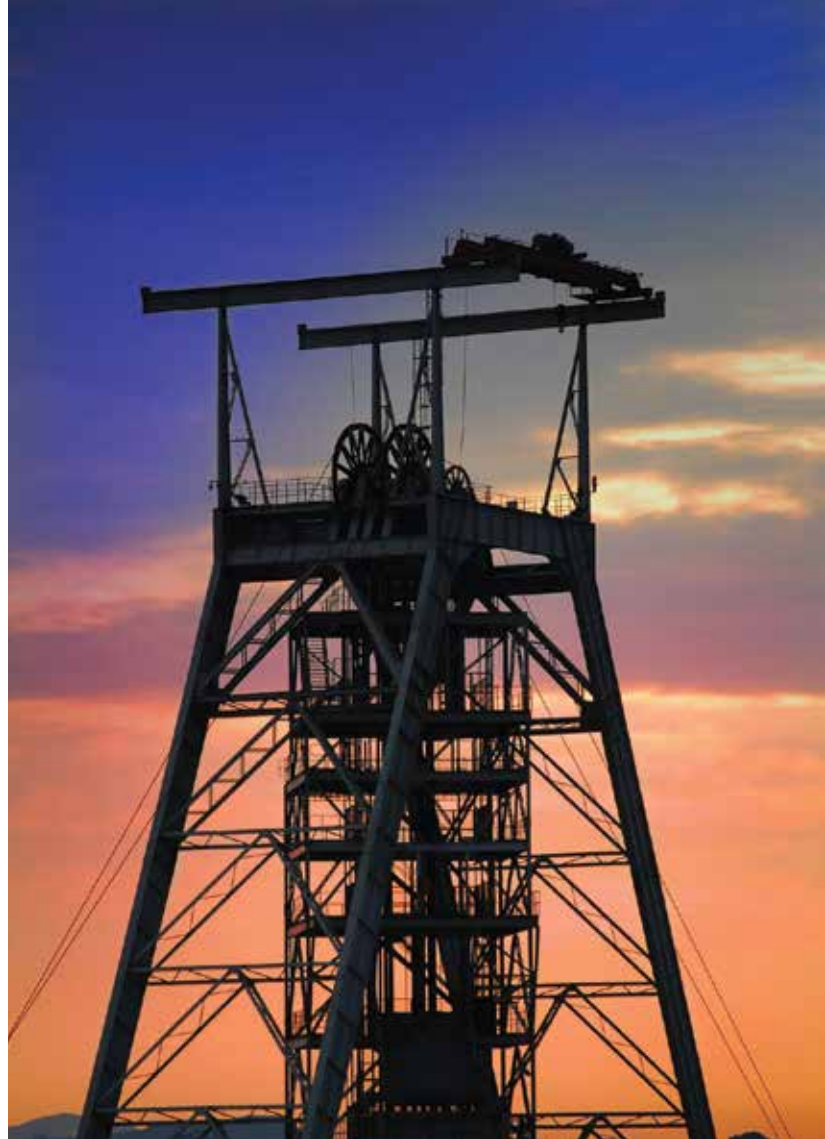
A clear and shared vision, he said, gives stakeholders the comfort of knowing what their sacrifices and compromises are going to achieve; the prize must be worth what each stakeholder is prepared to give up.

“Mining today is more of a cooperative venture than ever before, requiring commitment from mines to engage broadly about their impacts and requirements. While, in the past, it was usually simpler for new operations to build their own infrastructure in remote areas, this process now demands a more inclusive approach that is sensitive to the wider social and natural environment.”

An area where Indaba delegates discussed these kinds of opportunities was in innovative financing solutions for energy generation in the African mining sector. Renewables form part of the conversation about how to finance in-house power generation without the traditional long-term power purchase agreements.

“It is heartening to see signs of revived interest in prospects for mining in various parts of Africa,” he said. “These prospects will be well served by acknowledgements in both the private and public sectors that mines are complex undertakings that rely on real collaboration and partnerships.”

www.srk.co.za



Mining today is more of a cooperative venture than ever before.



Partner and principal consultant at SRK, Andrew van Zyl.

Scaw warns of bogus recruiters

Scaw Metals Group, one of South Africa's largest integrated producers of specialty steel products, has warned jobseekers not to fall for a scam advertising jobs at the company and requesting payment to arrange interviews in order to fill positions. The company's human resources department says some people have been requested to pay R1 700 to bogus recruiters purporting to be recruiting for drivers and general workers.

The unknown recruiters asked them to send resumes and make payments for the interviews for possible employment. Once payment has been made, the recruiters no longer answer their phones.

According to Ben Khumalo, executive head of Human Resources, fake or bogus recruiting occurs when a scammer poses as an employer or recruiter, and offers non-existent jobs which require that the job seeker pays money in advance. "We urge people not to fall for such scams. No recruiter is entitled to payments from job-seekers as recruiters, internal or external are paid by the employer for the service rendered. Scaw's current policy is to recruit employees from its Production School or through formal recruitment agencies for senior positions."

www.scaw.co.za

New Osborn MD

Johan Goosen has been appointed managing director of Osborn Engineered Products SA.

Goosen joins Osborn from Atlas Copco, where he managed Drilling Solutions and, in his most recent role of regional business line manager, was responsible for Mining and Rock Excavation Services. During his time with the firm, he exceeded financial targets despite the challenging market, and made significant contributions to increasing the business's market share and improving customer relations.

"Johan has a very good understanding of our industry and its challenges," comments Richard Patek, group president of Astec Aggregate & Mining, of which Osborn is a subsidiary. "He believes in an entrepreneurial approach to business that is founded on a customer focused philosophy. This is supported by strong leadership skills and interpersonal attributes. We are delighted to welcome him to the Osborn family."



New Osborn MD Johan Goosen.

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Legal concerns in PDS roll-out

Moving machinery is the second-highest cause of fatalities in South African mines after falls of ground, making the implementation of effective proximity detection systems (PDS) a crucial step, but there are still perceived grey areas in mine safety regulations.

According to Anton Lourens, MD of PDS supplier Booyco Electronics, the Department of Mineral Resources has laid the groundwork for the wider application of PDS through the February 2015 amendment to Chapter 8 of the Mines Health and Safety Act (MHSA). It is now required that PDS be installed on all mobile equipment on mines.

"Mines are required to assess significant risk in terms of moving machinery and people; and based on that assessment an action plan needs to be in place to mitigate that risk," Lourens says. "But there is still some uncertainty about exactly what mines must do, as the legislation has changed in the last decade

from being very prescriptive to now being more reliant on the 'reasonable man' test. The law does not say exactly what activity must be carried out; rather, it says that the mine must mitigate the risk."

He says there is also confusion on the issue of intervention. The Act deals with four industry categories: underground electric machines (where the law is clear that these must have an intervention system); underground diesel equipment (where only a warning system is required by law for now); surface diesel machines (which also legally require a warning system for now); and mining plant like refineries and smelters (where PDS requirements are not clearly defined).

"The revised MHSA allows for intervention systems on diesel machines underground and on surface, but is currently excluded from the promulgation so that's where the confusion comes in," Lourens says. "Underground electrical machines must have intervention systems

while underground diesel machines don't have to; it does appear that the requirement will be enforced, but not right now."

Lourens says PDS technology is still being developed to fully cater for all the requirements of the revised law; hence the staged implementation of the various requirements. A global initiative by large mining companies – the Earth Moving Equipment Safety Round Table – is facilitating collaboration between stakeholders to help advance the technology.

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Anton Lourens, MD of leading PDS supplier, Booyco Electronics.

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AfriSam boosts customer efficiency

A new initiative by cement and construction materials supplier AfriSam is helping concrete product manufacturers (CPMs) to reduce their costs of production while maintaining quality output.

According to Amit Dawneerangen, AfriSam's national sales manager, the new service is an Efficiency Audit facilitated by the company's Centre of Product Excellence in Roodepoort, and will help CPMs strengthen their businesses in these tough economic times.

"The audit service is really a formal extension of the partnerships that we already enjoy with our customers, and will highlight areas where CPMs can make their operations more streamlined and profitable," says Dawneerangen. "It deepens our ongoing engagement with them to resolve a range of technical and commercial challenges together."

Customers wanting to take advantage of the Efficiency Audit service can invite the AfriSam expert team to their production facility, where these specialists collect information on a range of operational areas, from raw materials and testing systems, to production processes and quality controls.

"Our teams comprise some of the industry's most experienced professionals, who take on the role of a technical consultant so they can engage on how best to drive down unit costs and improve business sustainability," he says.

Centre of Product Excellence manager, Mike McDonald says the depth of AfriSam's expertise in cement and concrete materials provides the core of the value added by an Efficiency Audit,

as these materials make up a large part of customers' operating costs. "By ensuring that their material quality and mix is optimal for their specific application, we can help them to achieve the lowest possible cost per unit produced."

Dawneerangen says that the current industry mindset often focuses only on the cost of materials in terms of rand-per-ton, leading many businesses to buy the cheapest available materials without carefully considering the impact of this decision on other important business objectives. "For example, admixtures can be a vitally important ingredient in the success of their products, so changing the admixture for the sake of a relatively minor cost saving could have damaging consequences in the production process and end up costing the business in lost sales."

McDonald emphasises the need for transparency in the audit process, to achieve the best results.

"There needs to be an open and honest relationship between the team and the customer," he says. "The customer needs to be able to give us access to their plant and to all their relevant figures and data, so that we have a full and clear understanding of how things work at that facility."



AfriSam is helping concrete product manufacturers (CPMs) to reduce their costs of production while maintaining quality output.

The audit is an intensive process involving usually about four experts, each one being a specialist in concrete, cement, aggregates or processes. As these specialisations do not necessarily reside in a single person, it is important to have an integrated team whose knowledge overlaps and reinforces the value for the customer.

www.afrisam.com

Second merger attempt for PPC, AfriSam?

Cement companies PPC and AfriSam are engaging once again in merger talks after PPC stepped away from an AfriSam-driven merger some two years ago. However, at a recent media conference PPC and AfriSam announced that they are considering the merger to create a major African cement producer.

The two companies will report back on the outcome of the merger assessment once it is finalised. Competition regulations remain a large uncertainty, particularly as PPC and AfriSam are dominant South African cement producers.



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Aspasa's About Face programme sets the benchmark

Environmental stewardship of Aggregate and Sand Producers Association of Southern Africa (Aspasa) member quarries across South Africa has improved significantly since the inception of the Aspasa About Face program in 1994. The program has guided and aided member quarries from mediocre environmental performance to being amongst the best quarry operators in the world.

Launched in 1994, the program has continually evolved to the latest version, Aspasa About Face 2017 which fully conforms to the latest issue of the international ISO 14001:2015 Environmental Management System. The program has been specifically adapted to the requirements of the South African surface mining industry and through this provides a management tool and assessment program to aid Aspasa members in the continual improvement of their individual environmental management systems.

Aspasa About Face 2017 is a compulsory program for all member operations, placing a strong emphasis on management commitment to environmental stewardship. It actively promotes awareness of legal requirements, environmental management that emphasises stakeholder engagement, optimal resource utilisation, waste minimisation, and the reduction of environmental footprint. Specific environmental training and awareness building by industry experts supports the program and changes

the annual audit from a mere audit to a value-adding, independent assessment of the member's operation.

The net result of participation in the Aspasa About Face program is a significant improvement in member operations' environmental stewardship with benefits relating to legal compliance, pollution prevention and, where it cannot be prevented, reduction to within authorised limits, degradation minimisation and general awareness improvement. Participation in the program has increased by an average of 10% per year since 2012.

The program is a valuable tool in the industry's commitment to meaningful self-governance.

Nico Pienaar, Aspasa's executive director, says: "By joining Aspasa and participating in the Aspasa About Face program, our operations are able to access information from global experts and peers on the latest developments in environmental management, and to gain access to the Association's industry-specific Environmental Management System, policies, procedures, related resources and more."



Aspasa executive director
Nico Pienaar.

www.aspasa.co.za

Bell appoints new head of sales

Bell Equipment Sales Africa is excited to welcome Mark Hughes to the senior management team. He is to be based at the company's Jet Park head office and his sales and marketing responsibilities stretch across the BESA region, which includes South Africa, Namibia, Mozambique, Zambia, Zimbabwe and the Democratic Republic of Congo (DRC).

The appointment is a return to Bell for Mark, who previously worked with the Richards Bay-based heavy equipment manufacturer in the 1990s through his involvement with its excavator supplier at that time. "I am very pleased to be back in the Bell fold after all these years. I've always admired the Bell brand, the company and its culture. It's a family business with a respectful and highly professional working environment. It's

also a world-class company with a strong entrepreneurial spirit and the tenacity to never back down from a challenge. Over the years this has seen Bell grow in physical size as an organisation as well as in the maturity of its products to industry leading standards."

Hughes is especially upbeat about the impact his role will have on the Bell business going forward. "I am particularly confident that our new range of E-series ADTs is as good, if not better, than what the rest of the market has to offer. This, backed by Bell Equipment's industry leading support, will most certainly see Bell consolidate its dominance of this sector.

"After a very tough couple of years, the industry is starting to see green shoots again and I would like to believe that we are through the bottom of the

cycle. This bodes well for Bell with our full line of products for the various industries we serve," he adds.

In welcoming Hughes to the Bell family, MD of BESA Menzi Dumisa says: "Mark brings a wealth of industry and leadership experience to the team and our region, and his past experience in our industry will greatly assist in meeting both our customers and our business objectives. We look forward to his contribution and wish him a long and satisfying career with Bell."

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Mark Hughes has joined the senior management team at Bell Equipment Sales Africa.



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Weir reaches out to

A household name among the big players in the mining sector, Weir Minerals has, in recent years, also developed a keen following among smaller, independent operators in the quarrying industry with its focused range of Trio® comminution products and expert aftermarket support.

“Meeting the specific needs of owner-managed quarries requires us to develop a flexible and highly responsive approach,” says JD Singleton, general manager of Trio® and Enduron® products at Weir Minerals. “We established a comminution team to sell Trio products directly to our customers rather than via a distribution network. In conjunction with our existing branch network we provide crushing, screening and material handling expertise as well as applications, capital project management, product management and product support.”

Many of Weir Minerals’ larger mining customers require permanent on-site teams to ensure optimal equipment performance and uptime. While the smaller size of most quarries does not warrant this full time on-site presence, they still deserve the same high levels of support.

The acquisition of the Trio Engineered Products Inc group of companies by The Weir Group PLC in October 2014 provided a substantial installed base of Trio products in Africa and the Middle East, further enhancing the brand with Weir Minerals’ well established support network across the region.

Weir Minerals is the original equipment manufacturer (OEM) for Trio products and it now services all the products – crushers, screens, feeders and conveyors – directly, further supported by a specialist roaming Trio product support team. This team is staffed with extensive experience in the crushing and screening field.

A Trio TC36 short head cone crusher installed in a quarrying application.

Small is big

Singleton highlights the fact that the number of independently-owned quarries in Southern Africa far outnumbers those owned by large corporations, with many small South African towns boasting two or three different quarry operators.

“Even on a global level, the pattern is similar,” he says. “The top eight producers in the aggregate industry worldwide account for only about 10% of all aggregate production.”

Weir Minerals Africa’s strategy to support this segment includes maintaining large stockholdings of spare parts at its Johannesburg warehouse and regional branches so that these are quickly available when required, to minimise unnecessary downtime of the plant.

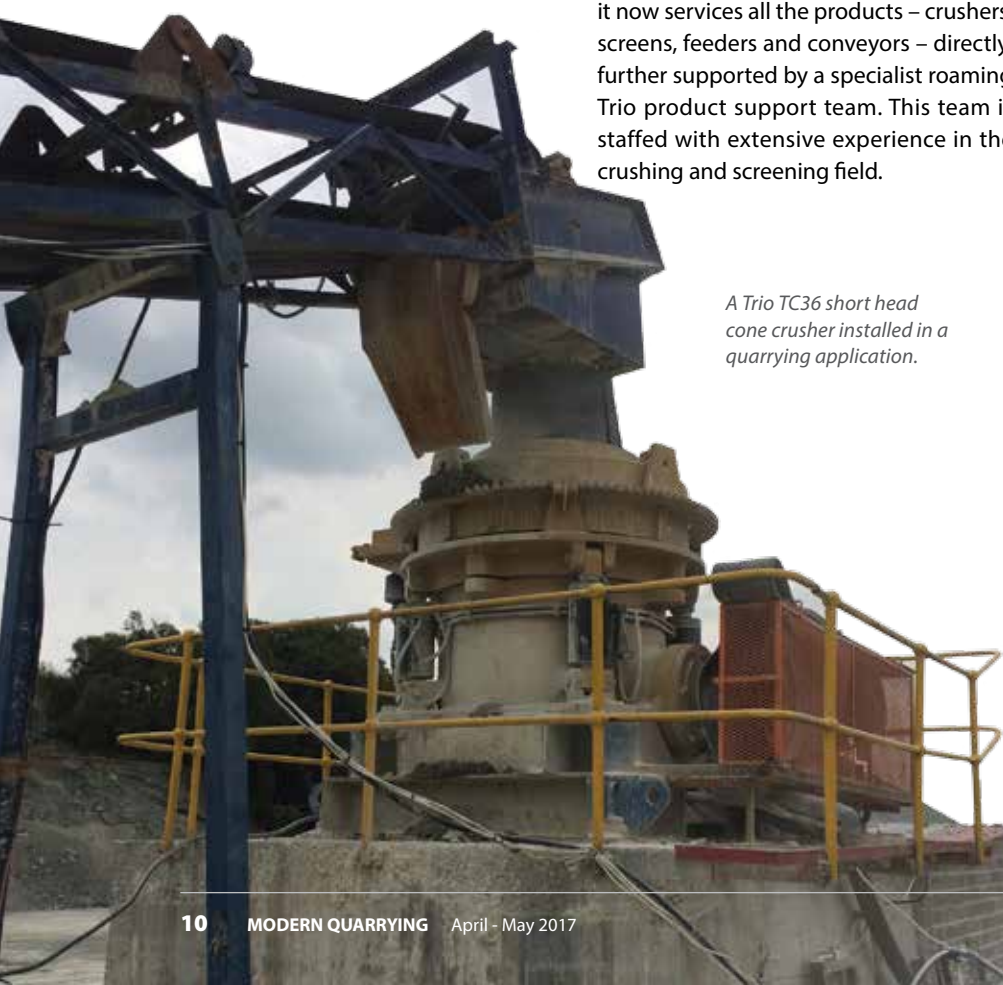
“We can support the owner by giving them individual attention for their particular equipment and processes,” he says. Key to the business approach is the focus on solutions; on listening to the quarry owner and customising a specific solution for the individual quarry.

“What we have managed successfully since day one is to help customers increase their capacity using their existing infrastructure, and we can apply this experience to any quarry owner who needs assistance,” he says.

In addition to Weir Minerals’ flexibility, there is the significant contribution made by the business research and development (R&D), based on its 146 years of experience in design and engineering. Since the acquisition of Trio, continued progress in R&D has led to the development of the Trio TP cone crusher range, for example.

Fit-for-purpose

“Quarry operators need to ensure that the crusher selected is fit-for-purpose and will meet the precise requirements of their operation,” says Singleton. “Weir Minerals’ crushing and screening application and product support engineers first conduct a full assessment of the crushing operation,



smaller quarries

looking at factors like material feed size, product type, capacity required, product sizes required, shape of material, hardness and moisture.”

The right choice of equipment can then be made from the business’ comprehensive portfolio, with capacities from 50 tph to 1 500 tph and catering for all ore bodies. An added advantage for customers is that the team of applications engineers and engineering support operate from the same premises, so customer-specific solutions can be jointly developed.

“We arguably have the widest product range in the sector, so we can offer complete plant solutions in aggregate,” he says. “This includes primary or jaw crushers, grizzly feeders, apron feeders, screens for both primary, secondary and product screening, cone crushers for secondary and tertiary crushing, conveyors, pan feeders, horizontal impact crushers, and vertical shaft impact crushers. A comprehensive range of conveyor solutions is also available.”

Wet slurry

In addition to Weir Minerals’ crushing expertise and equipment, the business also brings to the quarrying industry its wet slurry offerings, adapted from its experience in mining applications.

“Significantly, Weir Minerals can provide customers with solutions in both these fields,” he says. “This allows us to support customers who want to take advantage of the market for washed building sand.”

Sand washing is vital to create a good quality building sand; this consists of removing the ultra fine material to generate a product that can be safely used in construction work. As the mining of river sand becomes more difficult due to environmental controls and regulations, the production of manufactured sand has become a growing business opportunity for quarry operators as a by-product of stone crushing.

“By applying our knowledge of cyclones and pumps to sand washing processes on small quarries, we have managed to improve some customers’ efficiencies by over 30% and reduced their total cost of ownership, whilst utilising existing infrastructure,” says Singleton. “One local client was able to increase production by 6,0 tph, simply on the strength of our cyclone installation.”

With a portfolio including the world renowned Warman® pump, Cavex® hydro-cyclone, Enduron® dewatering screens and Linatex® wear-resistant rubber products, Weir Minerals can design and construct a sand washing system that is remarkable in terms of high efficiency and low maintenance.

Modular solutions

As the market leader for modular plant solutions, the design of the Trio modular structure plant can create extra value for customers by potentially lowering the cost of construction, shipment and installation.

“With our modular Trio plant solutions, we can configure our feeders, crushers, screens and washers into semi-portable or stationary modular structures,” he says. “These have become especially popular as smaller quarries in Africa and the Middle East are rushing to meet the growing market for construction materials as a result of infrastructure and private property developments currently underway.”

He emphasises that all crushers and screens in the Trio range can be mounted on skids, making it unnecessary to spend time and money on large civil-related infrastructure to support these plants. The plant can also be constructed in a mobile, wheeled configuration; this allows the plant to be

moved to a different position on site or to a different site as the operation evolves.

Optimising existing plants

Apart from installing plants and equipment to customer specifications, Weir Minerals’ skilled staff can also optimise customers’ existing equipment and processes to provide profitable results.

“With our application and product support experience, we will even visit customers who have products that are not our own, to see what improvements can be made,” Singleton says. “We can help customers to work out the total cost of ownership, so that they can make a more informed decision about the products they choose.

“On a recent project, we assisted a customer to achieve a 45% reduction in his maintenance downtime; using the total ownership cost approach in each application within the plant, the team can provide a realistic estimation of potential savings for the customer.

“At the end of the day, we have to answer this question: How do we help our customers to make more money?” says Singleton. “We do this through improving their uptime, reducing their energy consumption, and lowering the cost of ownership of their equipment.”

Attacking bottlenecks

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piece of machinery, and the identification of bottlenecks in the process. "We take a solutions-driven approach that attacks the bottlenecks by ensuring the right equipment and product support is applied to the problem area," he says. "This results in increased production and income."

In most quarry operations, the prime concern is to keep the plant running efficiently; a maintenance contract for the plant is one solution offered by Weir Minerals. In this arrangement, a product support specialist will conduct monthly checks on machinery and advise on preventative maintenance actions that must be taken.

"This strategy ensures that there are no surprises in the operation, and any downtime can be scheduled so that it has the least possible impact on output and revenue," he says. "We customise not just the solution, but also the service and spare parts offering for the plant because every application is different."

He emphasises that every customer has different cycles in their business and looks at their operations differently. "So our approach is to go and listen before we tailor a solution for what they need," Singleton says. "And after we begin a relationship with a customer, Weir Minerals is there to support the customer. This is the promise we make based on our long-standing reputation, to ensure peace of mind for every customer."

R&D pushes the productivity envelope

Ongoing commitment to research and development by The Weir Group ensures that customers have access to the latest technology in pursuing higher productivity and more profitable bottom lines.

Two products with the greatest impact on customer operations are the Trio TP® cone crushers and Trio TV® vertical shaft impact (VSI) crushers, machines that are responsible for producing final product and therefore directly improve revenue streams.

According to Rasheel Sukdhoe, business development manager Trio crushing and screening equipment, applying the right crushing technology in these areas can help quarries to increase flexibility and reduce operating costs. "The Trio TP cone crusher, for instance, has been

engineered with a unique combination of high crushing force, high throw and high pivot point. Its steep crushing chamber angle and large crushing stroke allows operation at optimum speed for a fine product, while its crushing action delivers maximum throughput and excellent inter-particle breakage."

The Trio VSI® crusher, engineered for use in tertiary or quaternary-stage crushing, also offers high throughput with reliable and cost efficient performance; it features advanced open table designs, multi-port rotors and a larger bearing capacity than most other VSI crushers in the industry.

Available with three interchangeable chamber configurations for maximum application flexibility in producing high quality cubical aggregates, this crusher also features the externally adjustable feed tube which allows adjustment without opening the crusher.

Global presence

The Trio comminution brand from Weir Minerals – with operations across the globe – includes crushing, screening, washing and materials handling solutions. The Trio product team for Africa and the Middle East operates out of Johannesburg with dedicated staff in Zambia, Ghana and Dubai.

The business has a strong global footprint with branches in North America, South America, Europe, Asia, Africa and Australasia. It is well known for its unique and innovative designs when customised equipment is required for specialised applications, allowing collaboration with customers to create high value solutions for their special needs.

With more than 150 manufacturing and service centres across 70 countries, Weir Minerals is always close at hand to support its Trio product range.

Easy operation

User-friendly features on the Trio range of equipment make it easy to operate, monitor and maintain. Service support teams provide multi-level training, which assists workers on the front line of operations to quickly master all necessary skills to operate and maintain the machines, leading to lower operating costs.

Washing – wet or dry

Many quarries are turning to Weir Minerals' sand washing solutions, incorporating Warman slurry pumps, Cavex hydrocyclones, Enduron dewatering screens and Linatex rubber hoses and rubber lining. The modular plants are available in stock units and can wash 50, 100, 150 and 200 tph of dry feed. Customised solutions are also available, depending on the customer need and application. These sand washing plants incorporate the best hydraulic designs in slurry pumping and cyclones, to provide maximum production with minimum footprint.

www.minerals.weir



JD Singleton, general manager Trio crushing and screening equipment at Weir Minerals Africa.



Rasheel Sukdhoe, business development manager for Trio crushing and screening equipment.



A Cavex CVX cyclone and Enduron dewatering screen optimising production in a crushing application.

Moregrove – a quarry with its eye on the ball

The Moregrove story began with the purchase of Moregrove Farm in 1942 by Fraser's Quarries with augmentation and acquisitions becoming a recurring theme in the early life of this remarkable operation. Today, some 75 years later Lafarge Moregrove still has much to be proud of. MQ paid a visit to the PE operation.

It was lovely catching up with Peter Willemse, Lafarge's quarry manager for the PE Area, who is tremendously proud of what he says are his two women in mining – Moregrove quarry foreman Neo Bepswa and Coega's Pfariso Khorommbi (see next issue). "Both face huge challenges and for Neo in particular a major challenge is the fact that she is running a mine with neighbours as close as 50 m from the quarry."

Neo Bepswa joined Lafarge in 2008 as a learner electrician undergoing an artisan apprenticeship which she completed in 2010. "I started off in Cape Town at Tygerberg Quarry and worked with the electrician at that time. I am always striving to learn more and I soon moved into production and became a supervisor in 2012."

She joined Lafarge's LAMP (Lafarge Aggregates Management Programme) shortly thereafter and was subsequently promoted to foreman at Moregrove in Port Elizabeth in September 2015.

"I am an artisan electrician by qualification and consider myself to be a very practical person. I love quarrying and my ongoing journey together with the opportunities offered to me by Lafarge are tremendous; to have started off as a learner knowing nothing to becoming a foreman – I see myself already as a manager," Bepswa says. She has her blasting

ticket and sees herself in an electrician, blaster, and manager role. **(Editor's note:** Since writing this article, Neo is well on her way to fulfilling her dreams for the future. She has subsequently been transferred to Lafarge's Saldanha operation as acting, and soon-to-be quarry manager).

"The surprising thing is that people always say that it's challenging for us as women in mining, but I have been and am surrounded by wonderful men who just want to see me grow. Not a lot of women find that and I have it," she confirms. She names these as "Peter Willemse, my rock; Patrick Ndlwana and Dave Hierons, my mentors and Hennie Kriel, who gave me the opportunity, believed in me and is ultimately my role model."

"Moregrove quarry is a beautiful quarry closely surrounded by neighbours, so one has to be careful that everything we do is in compliance with the law, and this includes noise and dust suppression. I know other quarries are also concerned about dust but for us it is a major challenge in terms of our neighbours, and we have to constantly plan ahead to suppress dust and to ensure that things run smoothly. I believe the operation is run like a well-oiled machine. We have our challenges but it is our neighbours that keep us on track. They make us shine, and we have a close relationship with them. This comes in the form of regular



monthly meetings chaired by a neutral person with minutes which we follow up to ensure that everyone is happy."

Moregrove is currently mining the D Section and Bepswa is excited about the future of this area. "My challenge is to carry the quarry further." She has some exciting thoughts in this regard and has reserved these for comment in the future. The plant consists of the primary plant and the secondary and tertiary plants, together with the washing plant. There have been several upgrades over the past few years which include the Dakota air separator and washing plant, among others.

"Pricing is a problem here in Port Elizabeth, but we pride ourselves on quality. We sell the best and whatever we produce, we make sure it is quality. We don't want to sell volumes, we want to sell quality," she points out.



Aerial photograph of the Moregrove operation in Port Elizabeth. Note its close proximity to its neighbours (Courtesy Lafarge Moregrove).

Moregrove products				
Aggregate size mm	Sand	Base	Rolled-in chips mm	Other
6,7; 9,5; 13,2; 19; 26,5; 38	Crusher sand	Base course	6.7, 9.5, 13, 19	Silica flour, dune sand, slurry

“Our main products are 7,0 mm, 9,0 mm, hydrocone, fine grade and cost-crete,” Bepswa says reiterating that quality is a key priority for Lafarge.

Drilling and blasting is carried out by J&B Blasting on an ‘as when’ basis, depending on the requirements for the floor. “I never stop the plant because I don’t have material on the floor and always ensure that there is something for me to crush – I want to make what I sell, not what I don’t sell – and that’s the challenge in the business.

“I love the industry,” she says on our

walkabout, “there are new challenges every day and there is never a day that is the same. Safety keeps us very busy because we have to comply with the legal requirements.” Looking at the D Section she says she is so thankful that she has her blasting experience, “because I can see that with the right planning and blasting we have vast potential here. People say the quarry is old and yes it is, but I have been looking around and there are exciting opportunities for us to mine further.

“I am always on the lookout for

possibilities, at what we can do better and how we think in blasting. What I have seen in some instances is that a blaster is just a blaster.

However, the key in quarrying is to have someone who understands blasting. But if your job is just to blast and then you go home, you won’t concern yourself about the future. There is a lot of potential here,” she says.

Moregrove has several loyal clients including Much Asphalt and at the time of writing was involved with Sanral’s N2 road project.



A bright future: Neo Bepswa, who at the time of writing was quarry foreman for Moregrove. She has since been promoted to acting and soon-to-be manager at Lafarge Saldanha in the Western Cape.

Moregrove beginnings

Fraser's Quarries purchased the Farm Moregrove in 1942. Additional lots were required later with augmentation and new acquisitions becoming the recurring theme of the Moregrove story. A key investment in Frasers occurred in 1944 when construction firm Murray & Stewart (now Murray & Roberts) took a stake in the PE supplier.

During this period, Fraser's activities covered not only its relatively modest operations at Moregrove, but Burt Drive and Bethelsdorp quarries in PE, and the Uitenhage Crushing Station which crushed Swartkops River stone on the Kruis River road.

Operations at Moregrove were labour intensive until 1947 when a large crushing screen and storage plant were erected. The vertical conveyor belt was a great advance on muscle-power and wheelbarrows.

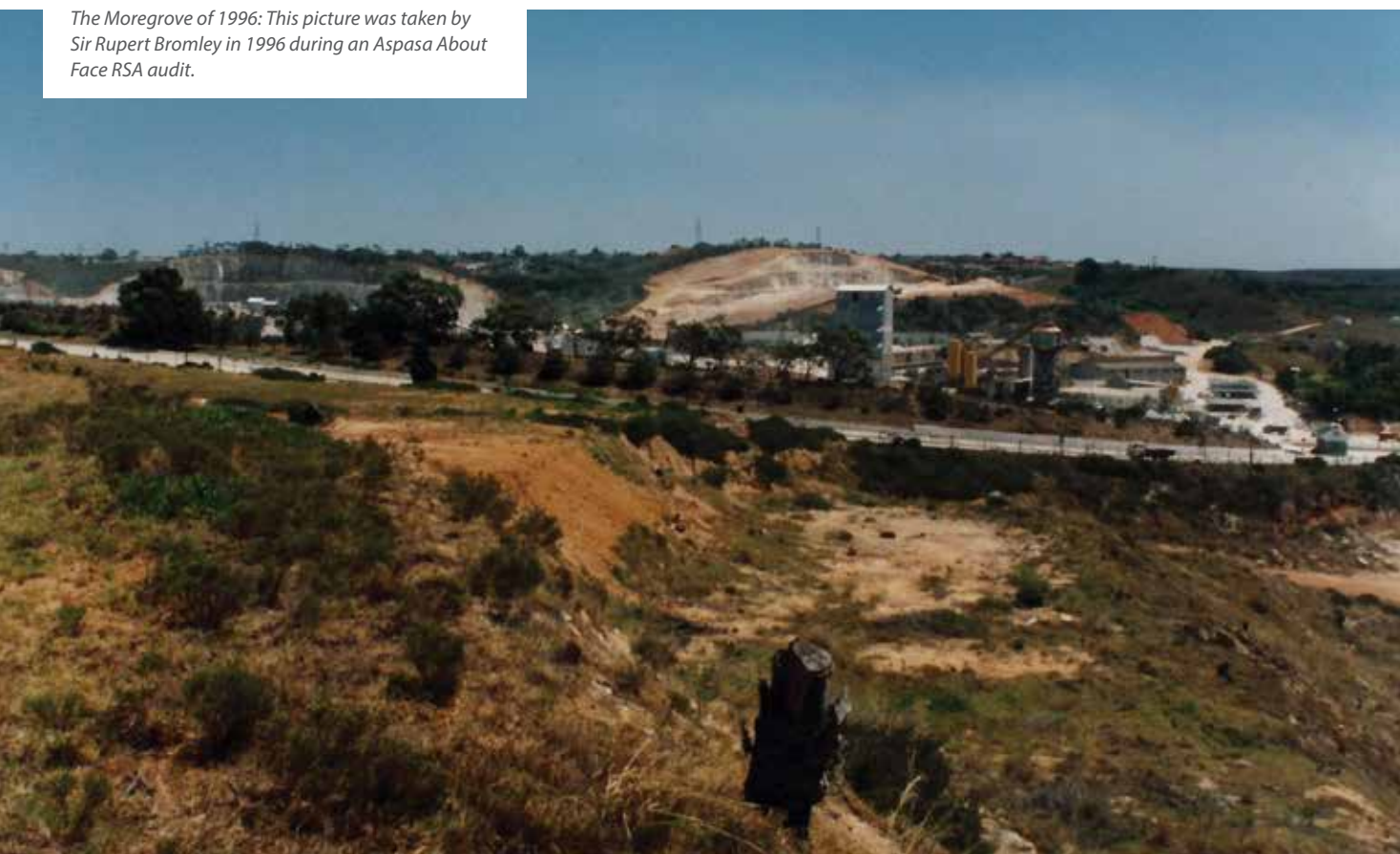
The 1950s saw a decade of increasing competition from Savage & Woodward (S&W). Andrew Savage was a prime mover in the rapid development of S&W, a quarrying operation he founded in 1952. This quarry grew out of a transport business

opened by his father and uncle. The trucking company had a transport contract with Snows Quarries, which allowed it to establish good contacts in the construction sector. Snows ultimately closed its own operation and joined forces with S&W. The operation, with Frank Woodward as its first quarry manager commissioned new plant in the centre of what is today the Moregrove property. The new plant increased production capacity and gave S&W an important edge in its competition with Frasers.

By the early 1960s, PE was poised for growth. Major works were planned by the provincial administration and PE was becoming a main point of focus for the national roads programme, while local industrialists had expansion plans of their own. Andrew Savage's projections on the quantities of aggregate needed for this PE construction boom were daunting – neither Frasers nor S&W could cope, but as a merged operation with new, expanded plant, they would be positioned for profit and growth.

This scenario appealed to JW Robertson, then head of Murray & Stewart (major stakeholders in Frasers) and a deal was struck. In the process, the merging companies took over a tiny company, PE Holdings, which had certain sand pit rights, but no capital.

The Moregrove of 1996: This picture was taken by Sir Rupert Bromley in 1996 during an Aspasa About Face RSA audit.



New capacity was rapidly designed and installed at Moregrove, the hub of the combined operation. A joint enterprise was agreed with Ready Mixed Concrete of SA and the Moregrove operation began to emerge.

A ready mix concrete plant was built alongside the S&W quarry at Moregrove and a modern quarrying plant was commissioned 15 months later in March 1964. In the 1960s, the washing, mixing and batching equipment at Moregrove was among the most sophisticated in the world. In the 1970s and 1980s the quarry maintained its reputation for successful innovation with new product development while achieving leadership status in product quality and control.

The next major change was in January 1989 when Murray & Roberts and Blue Circle consolidated their quarrying and ready mixed concrete interests into one company, Ready Mix Materials.

Operator safety, social and community responsibility became areas of increasing interest with Moregrove becoming a South African pioneer in the field of social and environmental responsibility. The operation has played a crucial role in the modern development of PE and the Eastern Cape. Its contribution is well documented but there is little public awareness of just how substantially it helped change the face of the region; every major construction or civil engineering project in the area used materials from Moregrove.

Aggregate from the old workings at Fraser's quarry and S&W, was used in the residential building boom of the post-war period. During the construction boom of the 1960s, the merged operations at Moregrove provided the building construction material that helped transform PE into a modern Port City. Every bridge and interchange in the area was built with Moregrove materials. All national roads and municipal projects in the area used these materials.

The contribution extends far from the city to the Mossgas pipeline, the dolosse that protect the coastline from erosion, the Blaukrans Pass project, Sterkspruit Dam and Middleton Road. The list goes on and on and is continuing well into the 20th century.

The 1990s gave Moregrove a new lease of life, and at that time, the rezoning of the eastern portions of Section D for open mining, extended the life of the quarry by some 48 years.

At Moregrove, the long-term environmental impact has always been of major importance. Much of the workings are below the water table – creating opportunities for a wetland breeding habitat for aquatic birds. The opening of Quarryman Park was the start of an extensive greenbelt, with tree and protea planting and general rehabilitation having started in the 1980s. The greening of Moregrove began long before environmental concerns became a major issue.

Innovations

Moregrove and innovations are synonymous. The ready mixed concrete concept was introduced to the Eastern Cape from Moregrove, and there has been a succession of firsts and notable achievements over the decades.

New products developed at Moregrove in the early years included topping, retarded mortar, plaster, ready flow concrete, underwater concrete, lean-mix, trench fill and no-fines concrete. Cemented-treated sub-base and emulsion-treated sub-base were also pioneered by the Moregrove team as was foamed concrete.

Its laboratory was the first in the country to be awarded a SABS commercial laboratory listing. Moregrove was the country's first RMC plant to be awarded SABS 0157 recognition for quality management systems production, and it was the first quarry in the country to receive this coveted certification.

That long-term commitment



A well-oiled machine: Photograph shows the plant which consists of the primary, and the secondary and tertiary.

The Dakota air separator and washing plant.



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AT THE QUARRY FACE WITH MOREGROVE

continues to this day, a case in point being its achievement in the 2014 Lafarge Global Awards where the award-winning project executed under the then team leader and quarry manager Peter Willemse, was chosen as one of the six worldwide winners out of 170 top project submissions from 35 countries.

This project addressed the problem of the high fines content of its stone which was limiting sales of asphalt sand. After investigation, it was found that the quarry's air separator had the ability to move much of the fine sand particles. The asphalt sand's quality was improved and a profitable outlet for the recovered fines in the manufacture of bricks, blocks and other precast concrete products was determined. The project's benefits were enormous and included:

- Successful reduction in fines -0,075 mm from 16% to 10%.
- The fines were separated and can be blended with another product (-4,75 mm) to produce a blend which is in high demand for brick and block precast producers.
- The improvement in fines quality was cost effective.
- Low maintenance solution.

At that time, this proactive thinking resulted in R8-million revenue/year and an increase in asphalt sales.

Clearly the Moregrove people now under the leadership of Peter Willemse and Neo Bepswa (who made a considerable input as quarry

foreman), continue the respected traditions which have taken the Moregrove operation into what it is today. The people of Moregrove have always been forward thinkers and are leaders in quality and customer service, continuing to plan the successes which will take it well into the future.

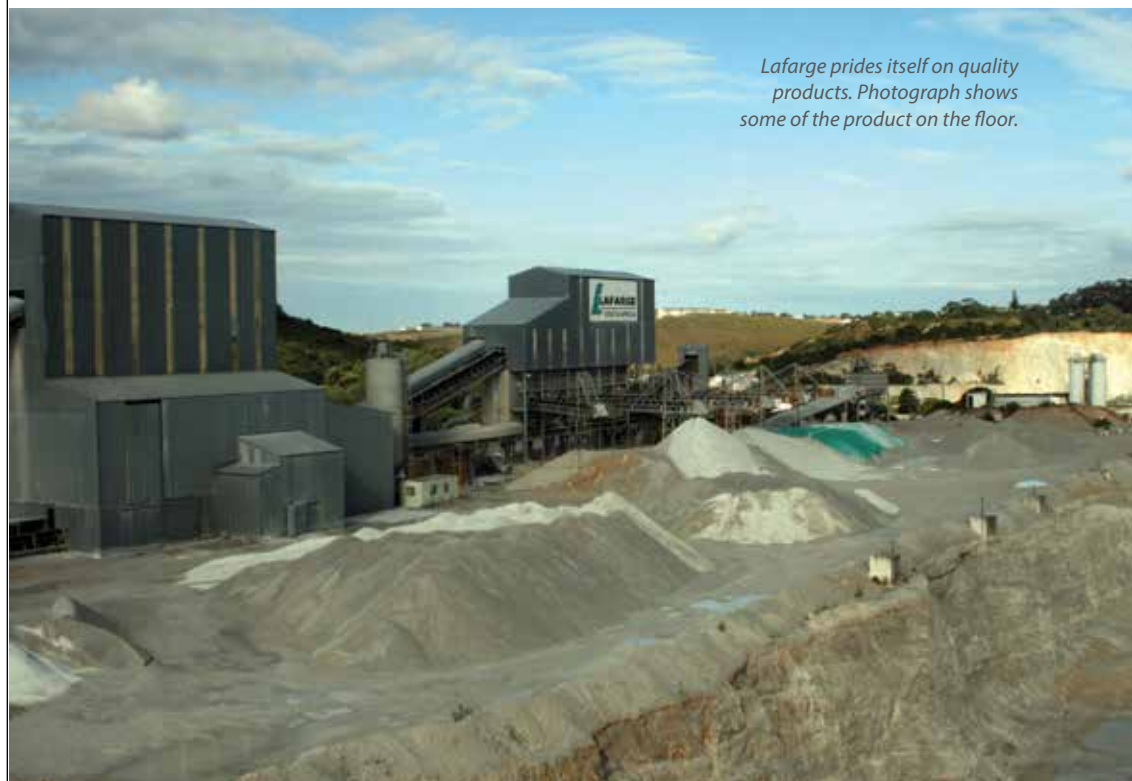
MQ wishes Sidwell Rafefume who has taken up the new position at Moregrove much success in his career.

Report and photos by Dale Kelly

The original quarry pit has become a haven for bird life.



Lafarge prides itself on quality products. Photograph shows some of the product on the floor.





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MIDSOLE	Shank reinforcement for additional arch support Anti-penetration midsole available (6-8 weeks)
TOE CAP	Steel
SOLE	Double Density PU/Rubber - outersole 8mm thick (heat resistant up to 300°C)

SANS / ISO 20345

DAKOTA 40002 Abrasion resistant safety boot



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LINING	Needle-fibred vamp lining for excellent perspiration absorbency Anti-static, non-woven in-sock for flexibility, comfort and stability Anti-bacterial Energiser woollen top sock with anti-microbial properties and a Poron insert at the heel for shock absorption
MIDSOLE	Shank reinforcement for additional arch support
TOE CAP	Steel
SOLE	Double Density PU/TPU Sole (Heat-resistant up to 95 °C)

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Apollo Wasp SMS
Style No: **9672**



UPPER	Black Lunar Buffalo leather 1.8 - 2.0 mm thick
	Black Arca Leather 1.0 - 1.1 mm thick
LINING	Vamp-Non woven synthetic fibre
MID- SOLE	ABG Metal insole
TOE CAP	1547 Toe cap 200 joules
SOLE	Wasp R5 Heat Resistant to 300°C

SANS/20345



Maxeco Wasp SMS
Style No: **9684**



UPPER	Black Bartan Buffalo leather 1.8 - 2.0 mm thick
LINING	Synthetic: Black PU lining, Black Cambrill
FITTING	Wide fitting style WS/ST
INSOLE	Texon 480 2.25mm thick
TOE CAP	1547 Toe cap 200 joules
SOLE	Nitrile Rubber Heat Resistant to 300°C

SANS/20345



Vesuvius
Style No: **9666**



UPPER	Black Lunar Buffalo leather 1.8 - 2.0 mm thick
	Black Arca Leather 1.0 - 1.1 mm thick
LINING	Grey Cambrill Reflective Insert
INSOLE	Texon 480 2.25mm thick
FITTING	Wide fitting style WS/ST
TOE CAP	1547 Toe cap 200 joules
SOLE	Wasp Nitrile Rubber R5 Heat Resistant to 300°C

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COLOUR	Black
SOLE	PU/TPU Dual Density Sole for Improved Abrasion Resistance
HEAT RESISTANCE	Up to 95° Celsius
UPPER	Smooth Full Grain Leather
TONGUE	Padded Gibson Style Leather Tongue
ACCREDITATION	SANS 20345
GUARANTEE	6 Months Fair Wear and Tear (Us and Cs apply)



IGNITE | 9004
PU/TPU Dual Density



SIZE RANGE	4 - 13
COLOUR	Black
SOLE	PU/TPU Dual Density Sole for Improved Abrasion Resistance
HEAT RESISTANCE	Up to 95° Celsius
UPPER	Smooth Full Grain Leather
TONGUE	Padded Bellow's Tongue - Leather
ACCREDITATION	SANS 20345
GUARANTEE	6 Months Fair Wear and Tear (Us and Cs apply)



TITANIUM | 4060
PU/Rubber



SIZE RANGE	4 - 13
COLOUR	Black
SOLE	PU/TPU Dual Density Sole for Improved Abrasion Resistance
HEAT RESISTANCE	Up to 300° Celsius
UPPER	Full Grain Leather
SOLE	PU/Rubber
STC	Yes
ACCREDITATION	SANS/ISO 20345

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Aspasa – an association with broad appeal

The role of the Aggregate and Sand Producers Association (Aspasa) is becoming increasingly important as it continues its role in steering the industry towards global standards. In just over a decade since the establishment of Aspasa, the industry has undergone a complete turnaround from being largely unregulated to the professional sector it is today. MQ met up recently with executive director Nico Pienaar at his offices in Randpark Ridge.



Aspasa executive director Nico Pienaar.

Founded over 25 years ago by quarrying industry role players with the aim of establishing a single entity to promote the industry, Aspasa was tasked with formalising the industry and driving the implementation of rigid standards for both environmental and health and safety. These programmes are ongoing and are updated on a regular basis in terms of legislation which is constantly changing; all of which has resulted in a significant improvement in member operations.

Now, Aspasa has identified the gap that exists in the industry in terms of training workshops and skills upliftment and is spending a lot of time and resources in promoting effective and valued training to its members. Since the beginning of this year, it has run several very successful workshops, some of these so well attended that Aspasa has been forced to move to larger premises for the day.

"We gather a lot of information during the course of our About Face and ISHE

programs and have identified some of the critical areas that need support training. The main focus areas are crushing, health and safety, environmental, risk assessments, explosive management, transport, lockout procedures, supervisory training, first aid, HIRA, SHE incident investigation and safety, among many others," Aspasa's executive director Nico Pienaar tells MQ.

This year already, it has held several very successful courses with excellent feedback from attendees.

Upcoming training workshops are:

- **Construction materials crushing and screening:** Presented by OPSMIN's Alan Fletcher. The course covers crushing (effects of rock characteristics, reduction ratio, crushing stages); liner selection (jaws and cones); and screens and feeders (vibrating feeders, selection calculations, vibrating movement, factors for screen selection).

This course will run on May 11 in the Western Cape and May 18 in the Eastern Cape.

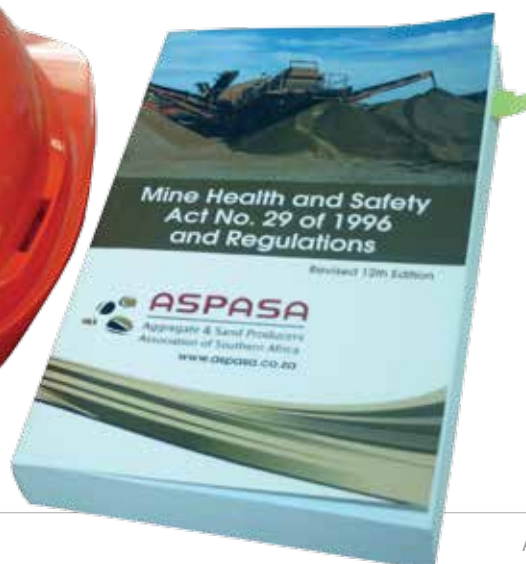
- **Health & safety and fatigue management:** Presented by Marius van

Deventer and Alex Raymond, this course was run successfully in the Western Cape last month and will be held in KwaZulu-Natal on June 13. The workshop covers safety and good industrial relations; good practices; rules to live by (prevent fatalities); risk assessments; safety is no accident; what safety really is; checklists; 10 things about safety that only a handful of people know; fatigue management and codes of practice.

- **Lockouts:** This workshop is presented by Tinus Jacobs and covers the following: Why lockout is important; obedience to order; health and safety specifications; purpose of lockout; locking out medium voltage; legal and other requirements; and lockout of TMM equipment.
- The dates are: April 12, Gauteng; June 6, Western Cape; June 29 KwaZulu-Natal; July 11, Northern Cape.

"We want to enable our members; we want them to be competent in what they do and we are in the process of

All the Aspasa training workshops come complete with course material such as the Mine Health and Safety Act Regulations. At the moment, Aspasa is waiting for the 13th Edition. This edition is invaluable in empowering managers to understand the law.



establishing committees to deal with transport, the PDS issue, environmental, government liaison, etc; all of these headed up by senior knowledgeable and well-respected people in the industry," Pienaar says. "Our aim is to underpin standards within the industry while simultaneously improving workforce skills."

"The often-run courses such as various health and safety, environment, risk, transport, quality, legal and HR/IR courses will continue to be held, but the number and content of the courses will be updated regularly in line with new requirements."

There will also be vocational-type training in the form of study tours, financial management for quarry managers, how to vet contractors, supply and control basics, construction material sampling and testing, operating mobile machinery and specifying the most correct, cost-effective fleets of equipment within the quarry environment.

New members find a voice

Pienaar tells MQ that companies that are not represented in their own industries are seeking support from Aspasa.

"Following intensive negotiations, we have agreed to accept membership applications from key salt, dimension stone, rubble and ash suppliers; so that these companies are recognised as quality firms that comply with the legal requirements, best practices, our structured health and safety standards, as well as environmental management requirements in terms of legislation."

The new Associate members will also benefit from other services offered to members in terms of skills development and training, representation in various mining, legislation and government bodies, and full representation on the Chamber of Mines.

"This effectively gives them a voice to be reckoned with on all levels, with their challenges and concerns taken to role players within the industry," he says. "By complying with our strict standards and legal compliances, they are undertaking to set themselves apart from less professional companies who do not uphold similarly high operational principles.

"Salt and dimension stone and other mining operations are similar enough in size to apply Aspasa's best practices and

standards. Skills development and people management within the industry can now be addressed through our programmes; so it makes sense to allow these members to benefit from our industry-leading initiatives."

Another new Associate Member is a recycled concrete aggregate (RCA) handler specialising in the handling, management and crushing of both construction and demolition waste and concrete waste.

The only requirement Aspasa has is that these operations must be lawful operations and the Association is working on its Constitution to allow for further expansion.

"Despite catering for this slightly different membership, our operation remains exactly the same and our name will be unchanged. Aspasa is well known throughout Southern Africa and globally, and is synonymous with quality suppliers of sand, aggregates and now sales and dimension stone, among others," he adds.

In just over a decade since the establishment of Aspasa, the industry has undergone a complete turnaround from being largely unregulated to the professional sector it is today.



Aspasa awards

The Aspasa Health & Safety and Environmental awards will take place on April 21, at the IoQ/Aspasa conference in KwaZulu-Natal. On the health and safety side, awards will be presented to:

- Top Performer 2016;
 - Top Independent Performer 2016;
 - Consistency in achieving Showplace 5 years running;
 - Most Improved Operations 2016;
 - Safety Manager's award for Outstanding Commitment;
 - Health and Safety Representative;
 - Safety Practitioner's award for Excellent Performance;
 - Management Safety Commitment;
 - Senior Management Commitment to H&S;
 - Best Operations Manager; and
 - H&S Service Provider Excellence.
- Environmental awards will go to:
- Top Performer 2016;
 - Top Performer; First Runner-up 2016;
 - Top Performer Independent Quarries 2016;

- Top Performer First Runner-up Independent Quarries;
- Top Performing Group 2016;
- Top Performer Non-quarrying;
- Environmental Excellence 2016;
- Best Physical Conditions; and
- Most Improved Operation.

A new award will be the Aspasa Aggregate Champion for 2016.

Special mention will also be given to operations which have shown enthusiasm as well as to individuals who have gone the extra mile.

www.aspasa.co.za

Report and photographs by Dale Kelly



Aspasa has identified the gap that exists in our industry in terms of training workshops and skills upliftment and is spending a lot of time and resources in promoting effective training to its members.



Charting a course to excellence with specialised services across Africa



Afrimat Limited has established a strong foothold in contracting services through its Contracting International division operating from the Western Cape and Gauteng. Services include mobile crushing, screening, drilling and blasting, which offers mobility beyond fixed areas of operation.

Afrimat offers blast designs for bulk blasting in quarry and opencast mining and specialised restricted blasting in built-up areas. The division operates internationally through a mobile hard rock crushing and screening service.

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Remote plant control with Keestrack-er

Keestrack, Belgium-based manufacturer of mobile aggregate equipment with a South African footprint, used CONEXPO CON/AGG to showcase its GSM/Satellite-based monitoring tool Keestrack-er. Speaking to Modern Quarrying at the show, Marcel Kerkhofs, marketing manager of Keestrack, highlighted that continuous analysis of operational and productivity data are an important key to provide full availability and optimised productivity of machine fleets and processing equipment in quarrying and recycling applications. "On Keestrack's mobile crushing and screening plants the advanced GSM/Satellite-based monitoring tool Keestrack-er guarantees full real-time location information and status reports, and offers access to the plants control software for immediate adjustments or larger updates," said Kerkhofs.

The Keestrack-er telematic system was first introduced as an option on the latest generation of Keestrack screeners and crushers two years ago. Key components

include a GSM/UMTS modem and a combined GSM/GPS antenna, which are linked through CAN bus to the machine's main control unit.

Real-time performance values – including engine/drive speeds, hydraulic pressures, crusher settings, stored data and the machine's accurate position – are transmitted via GSM network and the local GSM provider's internet access to the central Keestrack server. The information memorised and administered on this server can now be safely and reliably retrieved at any time and from everywhere worldwide. The interactive structure of Keestrack-er also allows direct access on the machine's PLC-controller to fix or update the plant software.

According to the varying needs of involved parties – machine owners, service experts at dealers and technicians in Keestrack's competence centres – Keestrack-er offers different service packages to display, manage or edit the plant values and data.



Machine monitoring at a glance: the Keestrack-er telematic system offers a large freedom to machine owners.

The Telematic Viewer gives immediate access to all relevant parameters of drive components and installed ancillary equipment. For the ease of smartphone, tablet or laptop users, important values are displayed in dashboard style and intuitive graphics inform about activated components such as screens and conveyors, as well as alerts in case of malfunctions and abnormal values. This enables users to react instantaneously to avoid further damage by stopping the operation or reviewing scheduled maintenance to minimise productivity losses.

Metso's new digital service enables data-driven operations

As part of its Life Cycle Services offering to the aggregates industry, Metso used CONEXPO CON/AGG 2017 to introduce a new digital solution to help further optimise mobile crushing and screening equipment operations and maintenance. Metso Metrics Services is another step in Metso's digital development, leveraging the possibilities offered by advanced analytics and cloud-based technologies.

Mobile crushers frequently move between sites, making it challenging to track, monitor and maintain a fleet of equipment for maximum performance. Through a remote communication device mounted on a mobile equipment, Metso Metrics Services provides a dashboard view of critical operational and maintenance data – from utilisation rates to production levels and fuel consumption. With secured access, the solution allows for data-driven decisions that impact crushing operations.

"Making the most out of the assets depends on data you can trust. Having the right information at the right time helps customers make important operational or maintenance decisions to

improve uptime as well as utilisation and production rates. Metso Metrics Services is designed to collect and provide this crucial data in one easy-to-use interface. Combined with the expertise of Metso's network for troubleshooting or optional assistance with analysis, the solution provides tools for continuous improvement, both in performance, as well as safety and sustainability," says Giuseppe Campanelli, vice president, Service Solutions at Metso.


Metso Metrics Services helps to identify underperforming assets and training

opportunities, as well as to control maintenance and inventory costs. With the equipment maintenance plan integrated into the solution, plant operators can stay on top of their equipment's needs – making it easier to anticipate change-outs of spares and wears.

"Metso Metrics is an excellent example of how we can help our customers take their operations to the next level with digitalisation," adds Campanelli.

Metso Metrics Services provides a dashboard view of critical operational and maintenance data.





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Sand mining free-for-all

Illegal sand mining along the banks of the Msunduzi and Umgeni Rivers between Pietermaritzburg and Durban is posing an increasingly serious environmental threat. This is according to The Witness, which has been investigating a problem and which is urging the authorities to take a stand.

The local newspaper began investigating the illegal operations after being made aware of an illegal sand operation at Table Mountain in Pietermaritzburg by an avid hiker. Subsequent investigations revealed that similar illegal operations are taking place regularly along the banks of the two rivers between Table Mountain and Inanda.

According to Sanele Vilakazi, pollution control officer for the Duzi Umgeni

Conservation Trust (DUCT), illegal sand mining has become a free-for-all. He says unregulated and unchecked illegal sand mining is considered as one of the more serious problems facing the province.

“After illegally excavating the sand, the illegal operators just leave, abandoning the ravaged land without rehabilitating it. One particular site, which is thought to have been mined since the beginning of December last year, is on the banks of the Duzi in the Table Mountain area.”

He says the operation has destroyed the vegetation in the area, leaving it in a huge mess adding that the impact of vegetation clearing and the formation of access routes to sand mining sites has a profound effect on erosion and land degradation.

“With sand mining, most of the topsoil is removed and vegetation becomes absent. Water penetration is low and runoff is high. Sand mining subsequently leads to a hastened soil erosion process, which is worsened by heavy rains.

Groundwork research engineer David Hollowes says a lot of sand mining goes on without a mining permit or a water licence.

According to the report, the Department of Mineral Resources is aware of the illegal operations and the effect this is causing on the ecology and water quality. The Witness says it is a well-known fact that the DMR lacks the resources and manpower needed to clamp down on the illegal mining.

Informal sand mining along the rivers affect a wide range of stakeholders. Informal settlements, farmers, tourism and recreational businesses, municipalities and Umgeni Water have an interest in ensuring that the environment along the rivers does not degrade to the point of polluting the water or threatening the flow of the rivers.

The areas being mined typically fall within the control of a district municipality, and mining is often carried out with the consent of a land owner.

There are many other illegal mining activities taking place around the country,

such as open pit coal mines in other parts of KwaZulu-Natal, which are also not being effectively policed by the DMR.

Another way to tackle this problem would be to get all the affected stake holders together to discuss the way forward to prevent further degradation. Civil action needs to be brought to bear on the illegal sand mine owners.

“Burying your head in the sand, as many affected parties clearly have been doing for some time now, will mean the end of the Msunduzi and Umgeni rivers as we know them,” The Witness warns.



Is the DMR burying its head in the sand due to its own challenges at this point in time?



Sand mining leads to a hastened soil erosion and devastation to the landscape.

Scania showcases its construction solutions

Scania recently hosted a Construction Day in the Western Cape to showcase its various applications within the construction sector. Modern Quarrying spent the day with key personnel and customers at a quarry in Durbanville.

Regional general manager for the Northern and Western Cape region Marius Steenkamp says the Scania Construction Day is based around product awareness. "We have been actively marketing and selling our vehicles and in the last ten years the focus has shifted from us being a niche supplier in the long haul segment to diversifying into other segments. We have our entire team here today not only from a sales perspective but people from the parts department, service, rentals and finance to talk to customers about what we consider to be a unique solution.

"The most important thing about a day such as this is that customers can see our products and experience them first hand. This is an opportunity to showcase more than one application within the construction sector," Steenkamp says.

"If one looks at total volume, the bulk of construction vehicles sold is still the tipper and mixer applications. However, there are so many more applications on offer. Today is focused on some existing customers and also on prospective customers who we want to target."

Scania South Africa's general manager for products and marketing, Alexander Taftman agrees: "Although Scania started its foundation in South Africa with the long haul vehicles, we have actively expanded into other applications and segments particularly with our construction vehicles. Our early success with our long haul vehicles is a known fact, and now with our construction solutions starting to take off, this is the reason why we run events like our Construction Day to target the construction market."

The company has a local assembly

plant, with 95% of the vehicles coming into the country in kit form. The remaining five percent are fire trucks and special purpose vehicles which are manufactured in Sweden.

Malcolm Olivier, regional sales manager for Scania Cape Town describes some of the applications for the construction sector: "You have your normal tipping range of 10 and 15 cubic metres, the compactor which is the waste removal, the brick carrier which is proving to be very successful, the cement mixer and the water tanker."

He says Scania hosted a similar day last year to create awareness. "At that stage we only had five vehicles on display and today we have nine, which makes us very proud."

Western Cape growth

Discussing annual volumes in the construction sector, he says around 200 vehicles are sold annually in the construction sector and of that 80% is normally either the tipper or mixer application. "Then, of course, the water tankers, brick carriers,



Scania's heavy-duty P410 tipper and the Biodiesel refuse vehicle – which fulfils Euro 5 emission levels.



road sweepers, and compactors – all of which make up the remaining 20%. During 2016, we saw quite a big move towards the 8 x 4 tipper versus the normal 6 x 4, which historically has been the bigger mover.”

“It’s an important segment for us to compete in,” Taftman points out. “Because 200 vehicles of our total volume (which is around 2 000 vehicles annually), is still a big portion. This year, there are lot of opportunities in the tipper market but we are also focusing a lot of attention on the mixer segment, together with the other applications which make up the remaining 20%. We are very excited about prospects going forward.”

Steenkamp says it is worth mentioning that it is not an average Joe Soap that can sell into the construction arena. “It is far more than just a vehicle; one is selling the body as well, all of which is part of the solution offered to the customer. Our sales team has been in the industry for many years; they have the knowledge, experience and understanding of the industry and the customer’s specific needs.”

Training solution

A driver training solution is offered with every new vehicle sold. Scania offers many solutions from a training perspective including instructor-led training in the classroom to on-the-road training in various facilities.

“There is information shared with the driver within the cab itself indicating his driving patterns and habits, and we also do a lot of data downloading from the vehicle which is proactively shared with the driver,” Steenkamp explains.

The Scania-developed in-house fleet management system consists of the entry package which is free of charge and then there is an additional higher performance package aimed at increasing the productivity of the fleet. All that is required is a communicator unit installed in the vehicle and an email address for automatic reports.

Looking at the construction industry from a vehicle perspective, Taftman says the South African commercial vehicle market is based on four segments: light commercial, medium, heavy and extra heavy. “The extra heavy starts at 16,5 tonnes and upwards and this is the vehicle and the load; in other words the weight of the complete vehicle as it stands on the ground.

“There are three segments in the extra heavy category. These are long haul,

distribution and construction,” he tells *Modern Quarrying*. “Of these segments, if the market is healthy we should be able to sell more than the 12 000 units sold to date. Right now, the market has been in a decline for the last few years and we are down to about 11 000 which is more than a 10% drop. If you look at the split between long haul, distribution and construction, you can normally say that long haul is 70% of the market, construction 15%, and distribution 15%. In the latest statistics, long haul is down to 65%, and construction and distribution is up from 15% to 18%. So it is clear that we are growing our market share as far as construction and distribution is concerned.

“Trucking is a tool to make money, and the vehicle that can generate the highest profit back from the investment is the winner.” He believes it’s a numbers game.

“It is slightly different in terms of a construction vehicle,” Steenkamp asserts, “because the driving factors are different. Payload is crucial with uptime also being important.”

The Reimer Mobile Volumetric Concrete Mixer allows for cost-effective on-site production of concrete and is uniquely different to the conventional drum-type transit mixer. All the components needed to engineer concrete on-site – sand, stone, cement, water and admixtures – are loaded into separate compartments on the mobile batching plant.



The P310 Scania tipper is designed specifically to maximise payload. With a lighter frame, it is ideal for the transportation of sand.

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Increased payload

The fact that payload is crucial is confirmed by Christiaan Fourie from Fourie Sands who has just purchased his first new Scania 8x4. The man is modest and says the machine has been operating for the last three weeks and is doing phenomenally. He has second-hand Scania horses which have more than proven their worth. "I have one operation where I use my sliding bins but where they can only manage five loads, I am now able to do about nine or 10 loads with my new Twinsteer. My turnaround time is much faster."

Asked about the general feeling in the industry in terms of Twinsteers, he says "everyone is going for the twins with the trailer. One can move about 40 tonnes where one can only move 30 tonnes with the sliding bins. The new machine is a lot lighter on fuel and guarantees a higher payload with minimal cost. There is also a lot less wear and tear than with the larger sliding bins."

A second happy customer is Chris Tait from Haw & Inglis who has purchased eight Twinsteers and two Conemixers from Scania. "When our tender department was working on the tender for Kalbaskraal (a tender on the N7 close to the Melkbos intersection), they wanted something with more carrying capacity to haul aggregates as well as premix to site.

"So while doing some homework it came to our attention that some of our competitors working in the Free State were using the type of equipment that we were looking for. With that in mind, we started negotiations with Dippenaar Smith from Scania Cape Town, and ordered our first four units. Due to very good fuel consumption and that we were fortunate to get more work in the Birah (between Port Alfred and East London), and we bought our second batch of four units."

He says the mixers ordered with a TFM mixer combination were purely a decision to compare fuel consumption with the rest of a competitive fleet.

Tait confirms that the construction in the Western Cape has always been a tough one, and hence the decision 30 years ago to go where the work is throughout South Africa, Africa and globally. "We are in the business of building new roads and bridges, rehab and resurfacing of existing road infrastructure and

are proud of our many flagship contracts."

Discussing some of the challenges in the industry, he sees challenges as part of the day to day activity. "We just sort it out and work with it. As a construction company we are well adapted to challenges and changes in the construction sector. Some of our competitors complain about expertise and finding the right people as a challenge. For us, people are our most valued asset and we spend lots of time and effort on safety and training."

On a more serious note, however, Tait says the current water shortage in the Western Cape is becoming a concern and "something that we need to give urgent attention to."

Theuns Naude, key accounts manager for construction, is very upbeat about the construction industry in the Western Cape in particular. "We have really grown over the last two years; we have very loyal customers and our product is good. Uptime is crucial and this is the same in the readymix industry.

"Chris Tate at Haw & Inglis says he is saving about R30 000 a month on fuel with the two Conemixers. This has blown me out of the water," Naude says, "Scania has always been known for its fuel consumption and it is fantastic to have our customers coming back to us with positive feedback."

He says there is a buzz in the air. "Providing unique solutions for our customers is just a formality; there is

nothing we can't do. We are out there, we are supplying and I believe things are turning around in the Western Cape."

Judging from the many people attending the Construction Day and eaves-dropping on some of their comments, Scania is well on its way to becoming a formidable force in the construction equipment market.

Report and photographs by Dale Kelly



Scania's classic concrete mixer is one of the lightest four-axle mixers on the market.



Photographed at the Scania Construction Day held at The Quarry, Hillcrest Estate, Durbanville: From left: Malcolm Olivier, regional sales manager Scania Cape Town; Marius Steenkamp, general manager Scania Cape Town; Alexander Taftman, general manager presale, segment support and marketing, Scania SA; Theuns Naude, key accounts manager construction, Scania SA; and Dippenaar Smith, sales representative Cape Town.



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Loesche mill powers innovation

The United Cement Company of Nigeria Ltd (UNICEM) has successfully commissioned its new cement plant 2 at Mfamosing, Cross River State, Nigeria. Loesche received the order for two vertical roller mills of the

types LM 60.4 for grinding cement raw material and LM 70.4+4 CS, the biggest Loesch VRM for grinding cement clinker.

The cement plant at Mfamosing, located 30 km north-east of Calabar, the capital of Cross River State, Nigeria, has been fully operational since February 2009 and is equipped with the latest technology. With a capacity of 2,5 million t/year, the UNICEM plant has now been extended by Loesche technology.

Cement clinker will be ground with the LOESCHE mill type LM 70.4+4 CS.

www.loesche.com



The Loesche LM 70.4+4 CS is designed for a capacity of over 370 t/h.

Technicians for Africa

Barloworld Equipment and Caterpillar are helping address Africa's shortage of technicians with the launch of the free foundation-training programme, Technicians for Africa, in Tete Province, Mozambique.

"We know there is undiscovered talent out there, so we particularly aim to facilitate entry to technical training and careers for disadvantaged students, school leavers and job seekers. We are delighted that this initiative in Mozambique has already attracted 650 participants," says Vasco Santos, COO of Barloworld Equipment, Mozambique.

The Technicians for Africa programme gives free online training at foundational level in both Portuguese and English. All participants who successfully complete the free programme receive a SAQA -approved foundational certification as Cat® Certified Technicians.

Anyone with access to a smartphone, tablet or desktop computer can take part in the training, which consists of 18 one-hour modules. This e-learning programme is also available at onsite workstations in the company's drop-in facility, the Barloworld Equipment Container Computer Lab.

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Advancing blast design with drones

Explosives and blasting technology leader BME has established a High-Tech Services unit to advance the application of drones in mine blasting activities.

According to BME technical director Tony Rorke, drones fitted with high-resolution cameras and guided by computer systems using global positioning system (GPS) survey data have proved invaluable in improving blast quality. "Our dedicated team applies a range of modern technologies like drones to help us plan, monitor and execute blasts in ways that optimise our clients' results. The downstream impact can be felt in a range of benefits to mining productivity – such as finer fragmentation, higher digging rates and reduced power consumption in mine crusher circuits."

While great strides have been made in surveying and drilling blastholes, a mine's survey plan is often not completely accurate or up to date – potentially reducing blast quality.

"Using drones, we can generate high-quality aerial imagery of the blast site after holes have been drilled, capturing the exact GPS coordinates of each hole," Rorke says. "The position of each hole is surveyed and then marked so that it is easily identified in the footage from the drone as it passes overhead."

The actual blast-hole positions can then be referenced exactly to the survey coordinates of the mine – to allow accurate measurement of the variables necessary to plan an optimal blast.

"The coordinates are exported into our blast timing design program BlastMap III and into our AXXIS electronic detonator system – so that the appropriate firing sequences, timing and charge distributions can be applied to the blast, based on the exact positioning of each hole," Rorke explains.

He emphasises the benefits in being able to adjust the timing of a detonation in a blasthole – as well as firing sequences and charge distribution – to take account of any slight divergence of a hole's actual position compared with its place on the survey plan. "Unless we measure, we are only guessing; so better measurement – both before, during and after a blast – is the key to optimising blast results. Drones advance our measuring ability greatly when combined with BME's other innovative in-house tools like our blast planning software together with our electronic detonator system."

"Unless we measure, we are only guessing; so better measurement – both before, during and after a blast – is the key to optimising blast results," he says. "Drones advance our measuring



Aerial view from a camera mounted to a small UAV clearly showing the hole positions in the drill pattern.

ability greatly when combined with BME's other innovative in-house tools like our blast planning software together with our electronic detonator system."

The versatility of a drone as a vehicle for the camera also extends to valuable monitoring functions during and after the blast. What experts can take from the images and graphics is a clearer understanding of what block faces look like, and whether there is any damage or potential problems resulting from the drilling.

"Sampling, measuring and quantifying the fragmentation achieved by a blast is much easier when done from an aerial scale image that a drone can deliver, making the analysis much more useful in improving future blasts. The distribution and volumes of fragment sizes are important to monitor, as these are vital to continuous improvement strategies."

After a blast, drone images from above give a much clearer picture of where coarser and finer fragments are lying – and in what relative quantities. It may even be possible to use the images as a basis for actually measuring fragment size in a more scientific way," Rorke adds. "We currently take post-blast photographs but it is difficult to interpret these in a way that is statistically valid."

Software now also allows the creation of a three-dimensional surface of the blast block, by combining the aerial drone imagery and the face profile footage from land-based cameras.

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Revolutionary Wirtgen surface miner

The Wirtgen Group, global leader in mobile machine solutions for road construction and rehabilitation, as well as mining and mineral processing, has recently conducted several large-scale field tests on material degradation. Findings confirm that Wirtgen surface miners offer significant advantages in the reduction of contamination experienced in normal open cast mining methods.

In the coal mining industry, the breakage of coal occurs throughout production, from extraction at the face to end use. While some of this breakage is intentional, such as during extraction and crushing, breakage occurring during transportation, stockpiling, sizing or washing is not desired. Generally speaking, breakage behaviour depends heavily on geology, but mining technology of today offers the option to reduce the amount of fines generated during production to maximise coal recovery for optimised operation as well as minimising contamination of mined coal to increase yields.

In an effort to serve its customers better, Wirtgen recently conducted a number of large-scale field tests on material degradation. The company found that its surface miners offer significant advantages when it comes to minimising



A Wirtgen surface miner is a crawler-mounted mining machine with a rotating cutting drum for rock penetration.

contamination by selectively mining coal seams to separate the ore from the waste.

A Wirtgen surface miner is a crawler-mounted mining machine with a rotating cutting drum for rock penetration mounted at the centre of gravity, a configuration that ensures that the full weight of the miner machine can be transformed into rock penetration force. The cutting drum transfers the material onto a conveyor belt from which it is directly loaded onto a dump truck.

The machine mines layer by layer down to the required depth and the cutting depth can vary according to seam thickness. Even thin seams of just 10 cm thick can be mined and precisely separated from the layers above and

below. This level of precision makes for a cost-effective and more environmentally sensitive approach to mining of mineral deposits without any drilling or blasting..

The Wirtgen surface mining concept is no longer an unknown in the southern African mining sector. Surface mining has proven to be a viable alternative in South African open-cast mines, most especially in coal mines, where these machines really prove their worth. Wirtgen surface miners are set to revolutionise the open-cast mining industry in southern Africa, as it has done across the world, by addressing the need for safer, more environmentally friendly, effective and efficient mining by improving yields.

www.wirtgen-group.com

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Sharing history

MQ recently and came across a very interesting couple, whose one parent (now sadly deceased) was an old quarryman in the Mendip Hills. Commonly called the Mendips, the Mendip Hills is a range of limestone hills to the south of Bristol and Bath in Somerset, England. These hills are largely formed from carboniferous limestone, which is still quarried at several sites. Mendip producers

today include Aggregate Industries, Hanson, Morris & Perry, Lafarge Tarmac and Wainwright).

Doing some research, MQ came across Quarry Faces, which is a community heritage project telling the story of quarrying in the Mendips, and which has created an archive of oral history recordings with over 1 000 historic images. And this made me realise how little has been done to

date about the history of our own quarrying history.

The magazine has covered the history of some of our quarries in certain issues over the years, yet despite the economic importance of quarrying in this country, our records are sorely lacking in most cases. In many instances records have been lost, which is a real shame.

We need to share the memories of former quarry workers and to share the photographs they may have in their possession. Let's face it, sharing and depicting a quarry's history is also a way for aggregate producers to boost the image of their operations.

Let's look at Ciolli Bros in Cape Town, for example. Are readers aware that this was started by two brothers, Vincenzo and Antonio Ciolli, who originated from the Abruzzi province in Italy? From 1939 until 1951, the Ciolli Brothers quarried the yellow/white stone from a deposit located next to the river at Klipheuwel. They did this on land owned by the then Railways. The Ciolli supplied four rail trucks of stone a day, which was used to fill in the breakwater at the Cape Town harbour.

In 1951, the Ciolli Brothers started Gran Sasso Quarry with small earthworks on Henry Mellish's Durbanville farm. In 1953, they bought 12,85 ha of the farm land from Henry Mellish. They named their Durbanville quarry, Gran Sasso Quarry; after the Gran Sasso mountain, which is the highest mountain in the Abruzzi province. Incidentally Henry Mellish is a distant relation of mine. My late grandfather was Frank Mellish who was born in the Durbanville area.

MQ would like to invite all operations and suppliers to get in touch so that we can take this further.

Please contact the editor on dalek@crowne.co.za or mobile: 083 419 9162.



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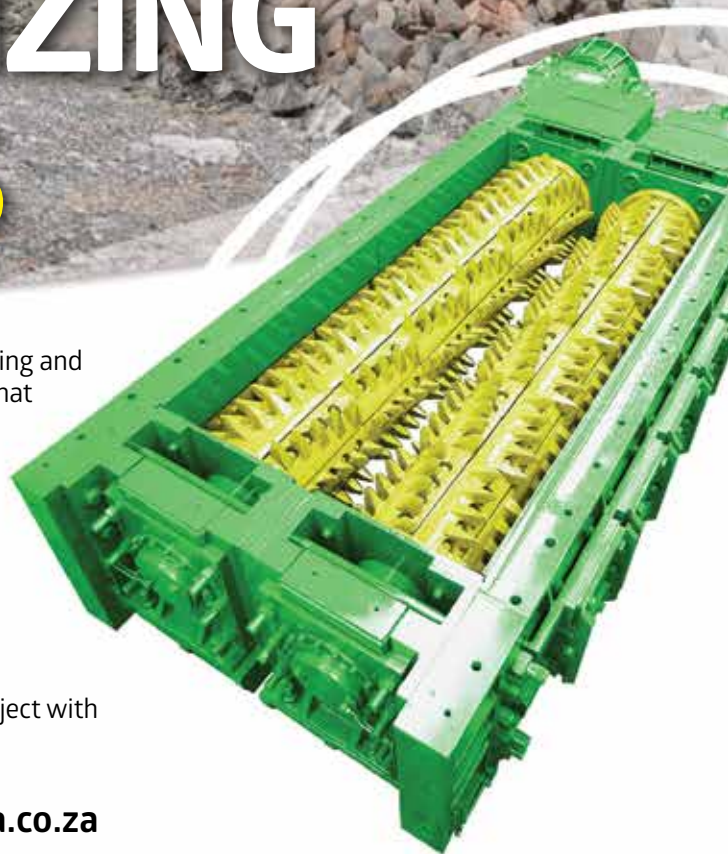
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