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On the cover...

PHOTOGRAPHY COMPETITION 2021 WINNER

This issue's front cover showcases the winning entry in the *Global Cement Photography Competition 2021*. It was submitted by David Alvarenga of Yguazú Cementos SA and shows the inside of the clinker dome at the company's plant in Villa Hayes, Paraguay.

David's winning entry beat more than 250 other entrants from all around the world in the eyes of the judges and earns him a cash prize. See if your entry is among the other showcased finalists on Pages 8-12.



Dear readers,

Welcome to the January 2021 issue of *Global Cement Magazine* - the world's most widely-read cement magazine - and Happy New Year! We hope that the Christmas and New Year break offered you the opportunity to take stock after 2020, the most unusual year in living memory, and to recharge for the challenges that 2021 will inevitably bring. Hopefully the picture for the global cement sector - and the wider economy - will be one of gradual recovery. However, as Proudfoot's Angus Maclean points out in his five point plan for the year (Page 14), there will be a 'rollercoaster race' to recover among cement producers. To paraphrase, Angus anticipates that the first quarter of 2021 will be the final quarter in which the global economy will be in suspended animation due to the pandemic. The second and third quarters will record significant year-on-year growth, with the fourth quarter representing something of a plateau. A lot of the recovery is reliant on the rapid roll-out of vaccines for Covid-19, which have been developed at incredible speed by a number of companies. In our clamour to get back to 'normal' - more on this topic on Page 65 - it is easy to lose sight that the development of even a single effective vaccine in less than a year, rather than the normal 5-10 years is incredible. Indeed, as we go to press the first recipients have just been given the Pfizer vaccine in the UK. If you had suggested that as a possibility to me in May 2020, I'd have shaken your hand off... digitally of course.

Elsewhere in this issue, we have a look at digital payload optimisation with authors from INFORM (Page 16), 'smart' servicing with BEUMER Group (Page 20) and carry an in-depth interview with Ishmael Ordonez, Senior Vice President for Administration at 'green' cement producer BIGBOSS Cement in the Philippines (Page 50). We also take in the cement sector of Northern Europe, one that has been contracting in recent years (Page 32) and there are technical contributions on fans (Page 43), air cannons (Page 44), roof-top solar installations (Page 56) and a bagging plant installation (Page 58). Last but not least, the runners-up and selected other finalists in the *Global Cement Photography Competition 2021* are showcased on Pages 8-12.

Enjoy the issue!

P Edwards

Peter Edwards
Editor

global cement MAGAZINE

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Editorial Director
Dr Robert McCaffrey
rob@propubs.com
(+44) (0) 1372 840 951



Editor
Dr Peter Edwards
peter.edwards@propubs.com
(+44) (0) 1372 840 967



Web Editor
David Perilli
david.perilli@propubs.com
(+44) (0) 1372 840 952



Editorial Assistant
Jacob Winskell
jacob.winskell@propubs.com
(+44) (0) 1372 840 953



Commercial Director
Paul Brown
paul.brown@propubs.com
Mobile: (+44) (0) 7767 475 998



Company manager
Sally Hope • sally.hope@propubs.com

Subscriptions
Amanda Crow • amanda.crow@propubs.com

Office administration
Jane Coley • jane.coley@propubs.com

Views expressed in articles are those of the named author(s).
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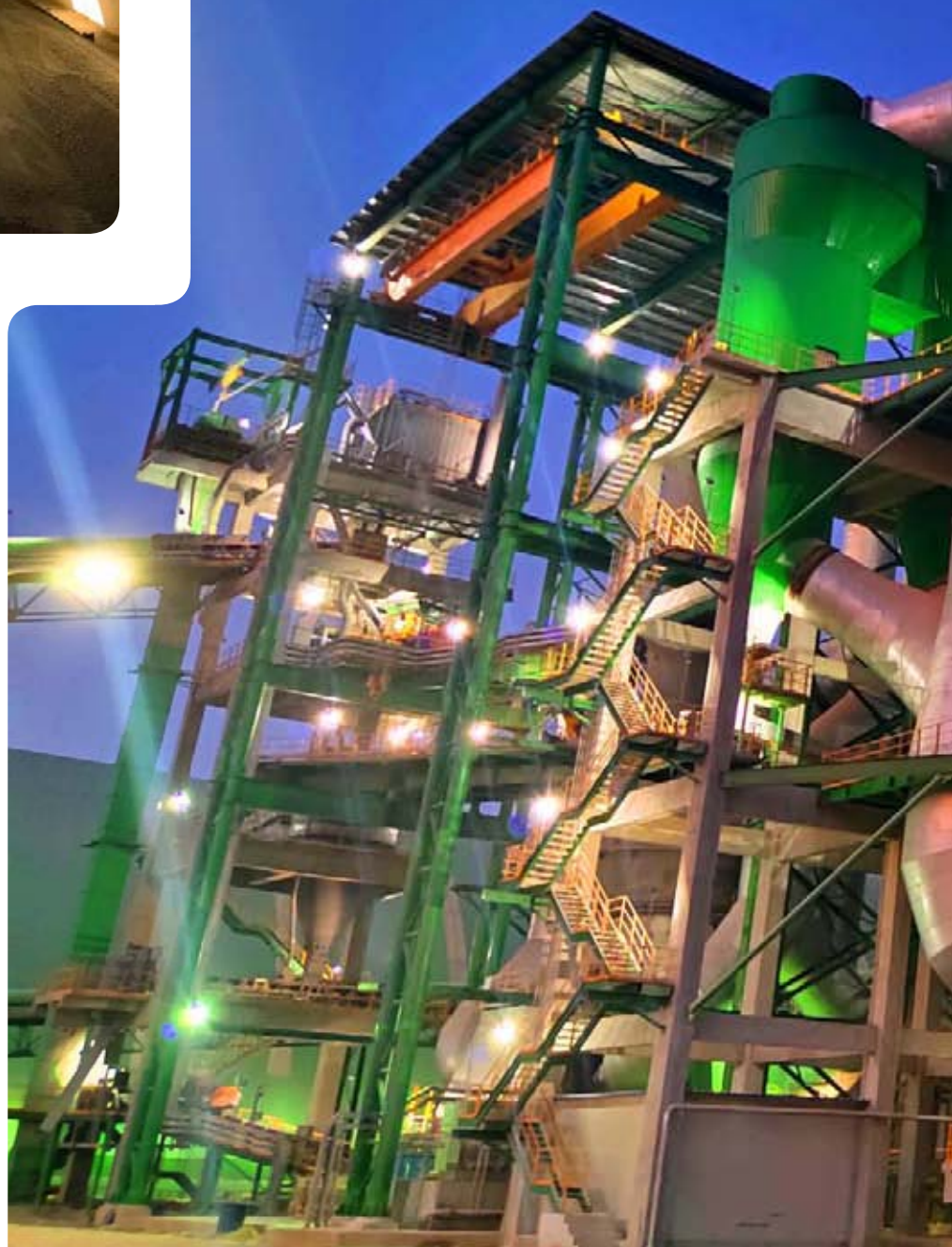


Above - Winner:

The winning image in the *Global Cement Photography Competition 2021* was submitted by David Alvarenga from Yguazú Cementos. It is shown on the front cover of this issue of *Global Cement Magazine*. It shows the inside of the clinker dome at the company's Villa Hayes plant in Paraguay.

Right - First Runner Up:

The first runner up was Irfan Hussain, with his image of Pioneer Cement in Pakistan.



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Above - Runner Up:
Heracles GCC Milaki Plant,
Greece, by Thanassis
Anagnostopoulos.

Below - Runner Up:
LafargeHolcim Alesd plant in
Romania, by Cristian Carstoiu.





Right - Honourable Mention:
Cemento Fortaleza, Merida, Yucatan, Mexico.
André Wehner, Gebr. Pfeiffer, Inc.

Below Right - Finalist:
New graffiti on the west-facing side of the Kirchdorfer cement plant in Austria. Claudia Feßl, Kirchdorfer Zementwerk Hoffmann GmbH.

Bottom of Page- Honourable Mention:
Biskria Cement, Algeria. Monousos Petrakakis, Athens, Greece.

Below - Honourable Mention:
Editions of 'Cement' by Fyodor Gladkov at the Novorossiysk Cement Museum, Novorossiysk, Russia. Anna Dobrovan.





GLOBAL CEMENT: *SELECTED FINALISTS*

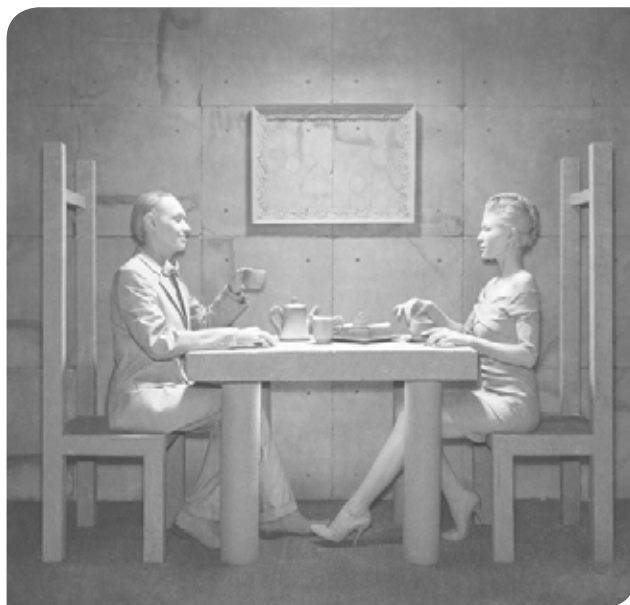


Above - Honourable Mention: *Walk on Mars*, Elena Beresneva. The location is the Uralsky Mars clay quarry, Bogdanovich City, Sverdlovsk Region, Russia.



Above Right - Honourable Mention: *Finished Cement*, by Fazlul Karim Chowdhury, LafargeHolcim Bangladesh Ltd.

Right - Honourable Mention: Photograph of *Scene in cement* by Maxim Zubov, Nizhny Tagil, Russia.



Below - Finalist: A new finish mill at the Ash Grove Cement Louisville plant in Nebraska, US. José Venegas-Guevara, Ash Grove Cement, a CRH Company.



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Angus Maclean, Proudfoot

Proudfoot's Five-point plan for 2021

Based on recent conversations with top construction and building materials executives and its 75-year history of implementing industry best practice around the world, consulting firm Proudfoot presents its five top tips for the global cement sector in 2021...



Above: Angus Maclean, Proudfoot.

Most of us would probably say that 2020 was nothing like the year we would have anticipated 12 months ago. The year brought massive uncertainty and many challenges to the global cement sector. It also brought big changes in the way we work and live. We are all now experts at working remotely and at video conferences. As I write, the second wave of Covid-19 is peaking in Europe and there is now line of sight to Covid-19 vaccines. There could be a third wave in the first quarter of 2021, but vaccines raise the likelihood that restrictions could be lifted in the spring, bringing a much-needed boost to the global economy.

Hence, we anticipate that there will still be significant uncertainty in the first quarter of 2021 and anticipate that sector performance will be similar to the same period of 2020 for most players. The second and third quarters of 2021 should, we think, present significant volume increases, meaning that all players will need to be ready to run at full capacity. The fourth quarter of 2021 should see a plateau. Our strategies for navigating in these uncertain conditions are:

Race to recovery and resilience

Plan for a 'rollercoaster race to recovery,' as there will still be significant uncertainty during the first half of 2021. Improve your sales and operation planning and financial forecasting even further, as these will be key to managing preservation of cash runways. Proudfoot's recommendation is to maintain customers' expectations by being extremely easy to do business with. Similarly, with suppliers, increase the frequency of communication in order to ensure they are able to respond to changes rap-

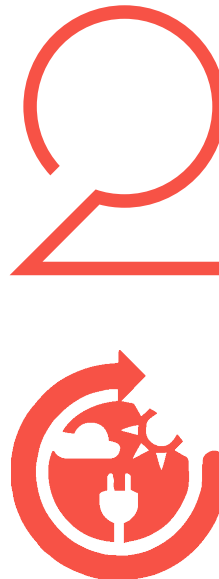
idly and to be sure that you have access to the necessary raw materials, fuels and logistics capacities, particularly in the second quarter of 2021.

Margins are likely to come under pressure during 2021, both from the supply side, e.g.: when securing raw materials, and the demand side, e.g.: from construction clients. As the construction market moves from residential/commercial to infrastructure, there may be pressure on volumes and price. By launching rapid, targeted cost reduction, optimisation of capital projects and revenue enhancement programs, you can compensate for these challenges and, at the same time, get your sales staff back up to full speed.

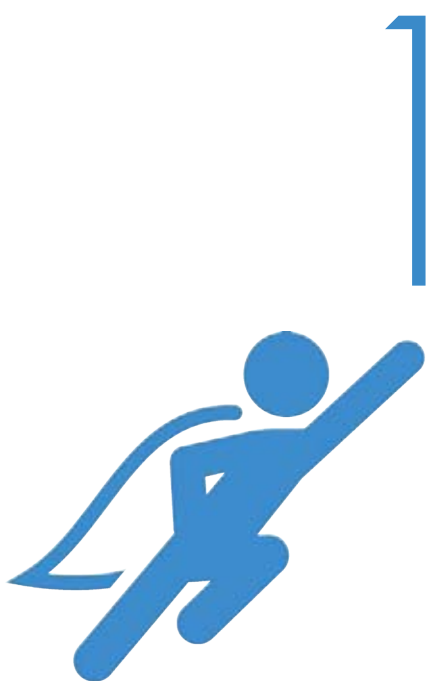
Decarbonation

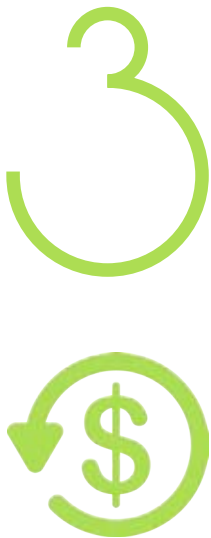
Lower carbon products are increasingly required by the market. Operating with recycled materials and circular economies with lower emissions is becoming *the* way to get ahead of the competition. There was a lot of publicity in the market with Net Zero campaigns and Green Deals pledges in 2020.

Proudfoot forecasts that 'discipline in execution' of the



plans will be key in the coming year to enable the pledges to be achieved. So, accelerate your new product programmes and service offerings. Accelerate co-financing projects in CO₂ capture and storage (CCS), new cementitious mixes and renewable energy projects like solar and wind farms with partners, for example private equity firms. The cement sector offers them the possibility of being seen to invest in environmental, social and governance companies.





Asset footprints

Current asset footprints are not necessarily adapted to the future markets and the coming decarbonised world. Implement 'ahead of the future' environmental and pollution regulation changes to be ahead of the pack! Eliminate old plants and or upgrade them now. For plants covered by the EU Emissions Trading Scheme (ETS) do not wait until payments stop.

There will be opportunities to acquire, divest, bolt-on and close plants. Redesign your footprint based on the future market attractiveness and value creation potential. Nobody wants to overpay or undersell. However, by accelerating your operational due diligence and post-merger integration capabilities, you can take the lead. Shareholders, for the most part, wrote off 2020. They will want to see returns, speed and certainty to cash in 2021. Other sectors are going to be less attractive, so this could present the sector with an opportunity to increase its shareholder attractiveness.

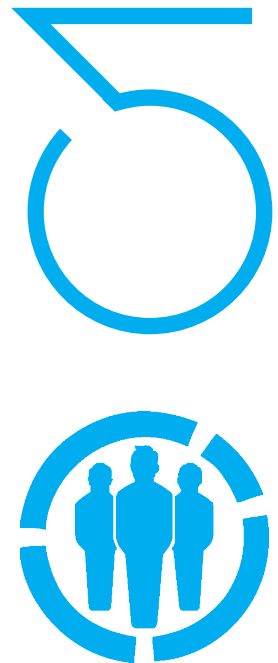
Digitise

Digital programs will be an important lever as in previous years, as these can help the sector achieve many of its goals. Unfortunately, these programs are not yet delivering the value they initially promised. We recommend implementing next generation operational and digital Target Operating Models (TOMs). These use digital and operational solutions and tools to enhance each element / building block of an efficient cement business, in contrast to costly global IT / Operational Technology / Internet of Things proof of concept projects. Digitisation should not only optimise the value chain, end-to-end, but also humanise the processes. New technologies need to add to existing human capabilities, not replace them.



People

Covid-19 social distancing, lockdowns, working from home and downsizing scarred the cement sector's workforce during 2020. The result is that many excellent candidates are now available or looking to move. Get ahead of the pack and recruit staff who would not normally be attracted to the cement sector. Implement heads-up leadership and active management behavioural change programmes. These will help lead your staff out of the crisis by engaging, enthusing and energising them!



Top: Cement producers, their staff, customers and suppliers have all been forced to adapt to new business practices over the past 12 months.

Left: While Covid-19 was extremely disruptive during 2020, cement producers should be able to see beyond the pandemic in 2021. Be ready!



Thomas Bergmans and Dirk Schlemper, INFORM GmbH

Payload optimisation: How to get the most out of your trucks

Payload, or how much a truck can safely load and haul, is a key specification for truck buyers. On the road to lower costs and better service in cement logistics, higher payload ratings promise to deliver more with less. This article looks at the limits of such traditional approaches and explores digital ways to boost the payload of your fleet.

Any home improvement project requires at least one trip to the local DIY shop. As we all know, hauling heavy construction materials like cement bags can be challenging without the right vehicle or trailer. However, even the most powerful and sturdy car/trailer combination has its payload limit, i.e. the maximum amount of weight it can safely hold and transport. Overloading a trailer might be very tempting, as it avoids multiple trips to and from the shop. These are both time-consuming and add extra costs to the project. However, safety considerations outweigh all others. Overloading a vehicle beyond its payload limit can cause serious accidents and major damage to the chassis, brakes, wheels, or engine.

Losing to gain

Whether you are a 'DIY-er' or a dispatcher at a cement plant running the outbound logistics for your

bulk and bagged cement operations, managing payload is key to safety, efficiency and profitability. In particular, bulk material logistics is all about weight, and every kilogram saved from a truck or trailer's tare weight means more payload and greater profitability per job.

Here is a simple calculation: Saving 200kg from a cement bulk truck that undertakes 2.5 loads per day results in a payload gain of 500kg per vehicle per day. With a fleet of 150 vehicles over a 12-month period, the gain amounts to 18,750t. Using 28t bulk tankers, that equates to 670 full truckloads. Or in other words, one truck out of the 150 trucks is not needed.

For this reason, the trend among truck and trailer manufacturers is to produce vehicles with the lightest possible tare weight to allow for as much payload as is legally permitted. It is an envelope that

Right - Figure 1:
Payload optimisation
in cement logistics.





Fleet Size



Trips/Stop



Calculation

FTL	250	3-6/1	0.5-2 min
LTL	250	2-3/10	15 min

Left - Figure 2: Digital Planning Speed in FTL and LTL Operations.

is constantly being pushed, with new approaches to challenge the design of structural and mechanical components in search of the perfect solution.

Another way to gain payload is to cut weight from your truck's body that is not needed, for example by removing onboard compressors. Depending on size, on-board units may weigh up to 400kg, plus the additional weight of the power take-off (PTO) to tap the truck's diesel engine. Many customer sites provide cleaner, onsite compressor units which can be used to unload cement into silos instead.

The limits of losing

As a first step, all these measures are great and are needed. But, as with all first steps, there are limitations as to what can be achieved. Some of them may even be beyond a cement producer's control. Many operate a mixed fleet of their own trucks and contract hires or make use of the spot market.

A more challenging way to move more payload is to increase the loaded ratio of your fleet. A truck running empty or inefficiently, is money down the drain. Reducing empty runs can be achieved by finding suitable backhauls for the return trip to the cement plant. Fly ash hauls from nearby coal-fired power plants, for example, can mean a substantial gain in payload. Removing inefficiencies by improving the overall quality of your strategic, tactical, and real-time planning is the ultimate yet most rewarding challenge. It offers the highest gain in payload, productivity and profitability.

Let us circle back to the simple calculation above: with a fleet of 150 trucks and an average productivity of 2.5 loads per day, the total annual shipping volume would be 2.65Mt. If productivity of each truck was increased to let's say three loads per day, just 125 trucks would be needed to ship the same annual volume. This means 25 fewer trucks. Remember, reducing the weight resulted in a saving of just one truck.



Payload 4.0

Stripping 200kg from a truck is a mechanical challenge that requires traditional tools, but boosting fleet productivity from 2.5 to 3.0 is a planning challenge that requires digital tools powered by algorithms. The cement transport planning phase is generally split into three stages: strategic planning, tactical scheduling, and real-time optimisation.

More than any other job, being a dispatcher brings a tremendous amount of pressure and stress. Each day is a challenge. Stages two and three of the planning phases can take their toll in particular. The decisions they have to make are incredibly complex and time-critical: assigning trucks and haulers, juggling with ad-hoc orders, tracking and tracing all trucks and orders in real-time, tackling driver shortages and driver hours of service, balancing costs and service levels, maintaining a high on-time in full (OTIF) performance, dealing with customer complaints, etc. In short, when it comes to creating complex delivery schedules and fleet configurations for the following shift(s), spreadsheet-based tools or



Above - Figure 3: Tailor-made LTL algorithms can improve bagged cement logistics significantly.

other legacy systems are not enough to support the decision-making process.

Substantial gains in planning speed and quality will only come from AI powered optimisation tools that are embedded into a wider digital supply chain. They allow transport planners to do incredibly complex, time-critical calculations with ease. What's more, algorithms can take a larger range of variables into account and can process more data faster than the human mind can, effectively removing human error from the dispatch formula. This, in turn, leads to significant efficiency increases and subsequently carbon footprint reductions across your entire fleet.

Much of this technology has its roots in supply chain optimisation; and in the mid-1990s, sparked by massive improvements in low-cost computer power, it also entered our industry. Redlands in France (now LafargeHolcim) was the first company in the aggregates and ready-mix industry to use the authors' transport planning tool to optimise their truck fleet operations. Six years later, Pioneer in Australia (now Hanson and part of the HeidelbergCement Group), followed.

The time required to solve a transport planning problem grows relative to the size of the problem. Less than truckload (LTL) planning for bagged cement logistics, for example, usually involves several stops along a delivery route, compared to just one stop in bulk cement logistics. Figure 2 gives an indication of what algorithms are capable of in terms of speed and quality nowadays.

For a full truck load (FTL) fleet with 250 trucks, three to six trips per shift and one stop per trip, it takes less than two minutes for the author's transport planning tool to come up with an optimised delivery schedule for the entire fleet.

For an LTL fleet with 250 trucks, two to three trips per shift and up to 10 stops per trip, tailor-made LTL algorithms need up to 15 minutes to punch out an optimised delivery schedule for the fleet.


Electric payload

With the promise of zero tailpipe emissions, the era of electric freight transportation has almost arrived. Development of battery technology is making electric heavy-duty vehicles technically and commercially viable. Several truck manufacturers have already introduced EVs. Diesel undoubtedly will remain the hauling industry's primary fuel for several years to come, but electric trucks will become an increasingly important piece, particularly in urban LTL distribution. The European Automobile Manufacturers Association (ACEA) expects 200,000 electric trucks to be on the road by 2030, around 4% of the total fleet.

At this stage, however, electric trucks come with higher costs than diesel models, along with range limitations and added weight that will cut into the payload capacity. On the plus side, they offer less noise which makes them suitable for early or late-night deliveries, even at urban construction sites and thus reduce peak traffic over the day. Access to low or ultra-low emissions zones will further spark the adoption of commercial EVs in the building materials industry.

Besides payload constraints, integrating electric vehicles into your fleet will also add further dimensions to the daily planning challenge in terms of battery capacities, outside temperature, charging infrastructure, elevation profiles of routes, etc.

Trailer for rent

Whether your fleet is powered by diesel or battery, digital planning tools powered by algorithms will bring the highest gains in payload, productivity, and profitability to your operations. Even cement producers with a mixed fleet of their own trucks, contract hires, and spot market loads will benefit significantly. Like the DIYer in our opening case, improper planning leads to extended rental periods or additional hires, thus higher costs and project delays. Cement producers who are content with their status quo and hesitate to invest into latest digital planning tools, should pay heed to the old DIY-er advice: "Always pick the right tool for the job!" 

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Service 4.0: On-site, without being there

With BEUMER Smart Glasses, the company's customer support staff can access customers' systems and solve problems together with on-site staff, without being there.

Machine malfunctions that are not eliminated quickly can become expensive. To help get machinery back up and running as quickly as possible, BEUMER Group developed the pioneering BEUMER Smart Glasses. The BEUMER Customer Support technicians use them to take a virtual look 'over the shoulder' of the customer's service technician to solve the problem together. This digital solution reduces travel times and costs.

"With the BEUMER Smart Glasses, our customers can get in live contact with our service experts anywhere and at any time," explains Christopher Kirsch, team leader of BG.evolution, a BEUMER Group spin-off company at the Technical University of Dortmund. "BEUMER is working on a customer problem with the support of start-ups to develop 'Minimum Viable Products.' These are minimally equipped prototypes whose market potential and customer acceptance we put to the acid test," explains Kirsch. This makes it easier for the BEUMER Group to decide quickly whether a new technology makes sense to develop into a finished product.

Together with their colleagues from BEUMER Customer Support and the Department for Research and Development in Beckum, the employees in

Dortmund made this digital solution ready for the market. "From October 2018 to January 2019, long-term tests were carried out with various customers, including one with live testing with a long-term customer from the building materials industry," reports Kirsch. The user has been using a high-capacity BEUMER paletpac palletiser and a high-capacity BEUMER stretch hood packaging system for years.

Reduce idle times

Traditionally, if users are not in a position to handle faults by themselves, the BEUMER Group would send a technician to minimise downtimes. Customers can also receive qualified telephone support for troubleshooting, which is available 24/7. However, it can be challenging to successfully communicate complex problems quickly and clearly over the phone. The BEUMER Smart Glasses make it possible.

Just put them on and get started

To use the BEUMER Smart Glasses, an employee at the machine puts them on and starts the BEUMER Support App via voice command. The employee transmits a service number and a pin code to the hotline. A connection with images and sound is then established. The BEUMER technician receives the same image as the customer. The technician can directly give instructions and display all relevant information in the field of vision. The employee has both hands free to follow the instructions of the expert and carry out the necessary actions.

Through this approach, faults can be solved quickly and precisely at any time. BEUMER's experts are available around the clock, seven days a week. "Language barriers or the lack of specialised knowledge are no longer relevant for trouble shooting," explains Kirsch. "Together with the user, we can also better validate why the fault occurred based on the recorded images."

"Users can add the BEUMER Smart Glasses as an extension to their monthly or annual hotline service agreement. Many of our customers are already showing clear interest," explains Christopher Kirsch. Together with BG.evolution, the BEUMER Group is currently developing further digital products under the umbrella of 'Smart Solutions.'



Right: The service technician has all important information displayed in the live image of the camera via the BEUMER Smart Glasses.



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Germany: COBOD supplies concrete printer to 3D-printed apartment project site

Denmark-based COBOD has supplied its BOD2 3D construction printer (shown right) to the site of the world's first 3D printed commercial apartment building in Wallenhausen, Bavaria, Germany. COBOD's partner PERI will use the product to print a 380m² complex that consists of five apartments across three floors.

Henrik Lund-Nielsen, general manager and founder of COBOD, said "We are incredibly pleased that we are beginning to see the fruits of the many 3D construction printers we have sold. The actual building projects have been delayed by the Coronavirus outbreak, but now they start to be revealed. This new German project is really a great milestone as the commercial nature of the building proves the competitiveness of the 3D construction printing technology for three-storey buildings and apartment buildings. This opens entirely new markets for our printers."



UK: Regen supplied to sustainable bridge

A stainless steel and concrete bridge, the first of its kind in the UK, has been built in Pooley Bridge, Cumbria. The structure (shown left) replaces its 250-year-old stone predecessor that was destroyed by severe flooding. The new bridge has been designed to withstand extreme weather conditions.

Hanson UK, part of Heidelberg-Cement, worked with contractor Eric Wright Civil Engineering to create a bespoke concrete mix for the lower arch of the steel bridge that was designed and constructed to provide structural strength. The high early strength concrete mix included Hanson Regen ground granulated blastfurnace slag. In total 1200m³ of concrete containing Regen was supplied from Hanson's nearby Penrith concrete plant to create the lower arch, bridge deck, bridge abutment and walls, highway approach retaining walls and several temporary works.



Americas: LafargeHolcim starts ECOPact rollout

LafargeHolcim began the roll-out of its ECOPact low-carbon concretes in its Latin America region in late November 2020, when it launched the product range in Ecuador, Colombia and Mexico. It says this will help it meet growing demand for green products in the region. ECOPact products launched in the EU, the UK, the US and Canada earlier in 2020. The group will launch the range in other markets in early 2021.

UK: Cemfree supplied to flood defences

DB Group has supplied its Cemfree concrete product to a site in Birmingham, West Midlands, for use by the Environment Agency in a flood defence project (see right). It says that the agency will use the concrete for kerb bedding and backing over several kilometres in conjunction with various recycled products in an effort to reduce the project's carbon footprint. Cemfree is a low carbon concrete made using ground granulated blast furnace slag (GGBS) and pulverised fly ash.



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Ethiopia: 5000t/day plant deal for Abay and FLSmidth

Denmark-based FLSmidth says that its contract with Abay Industrial Development Share Company for engineering, procurement and supervision on the upcoming Dejen cement plant is now effective. The 5000t/day plant will cost US\$120m and will create new 300 jobs, according to the supplier. It said that the plant will 'play an important role for the development of local infrastructure.' The supplier is responsible for design and engineering, full equipment supply, automation systems, installation and commissioning, as well as training and extended supervision. Key deliveries are due to begin in late 2021.

FLSmidth president Carsten Riisberg Lund said, "We are happy to see the contract now in effect. Following months of challenging working conditions on sites around the world, we are eager to get started on the project. This contract once again underlines our position as the preferred supplier of sustainable and productivity-enhancing solutions to the global cement industry."

Kuwait: ACICO contract for Cemengal

Spain-based Cemengal says that it has received a second order from ACICO Cement for a 1Mt/yr ball mill with a XP4i-130 type Magotteaux classifier for a new grinding plant.

The company said that the project, which it expects to commission during the first quarter of 2021, encompasses "Full engineering and complete supply of mechanical, process, electrical and automation equipment, as well as steel manufacturing from the raw materials handling areas up to the silos for cement discharge. In addition to the delivery of technology, the contract includes site supervision, training and commissioning activities."

The supplier said that the new mill would help the client to satisfy growing demand for high quality cements for major infrastructure developments in Kuwait.

Belgium: Magotteaux launches Expand wear parts

Magotteaux has launched Expand, a vertical roller mill wear parts product line for the cement industry. The equipment supplier says that the range offers high resistance, consistent production, energy efficiency and lower maintenance and replacement frequency. It also uses a scrap buy-back program to address product lifecycle concerns. The wear parts line comes in two variants: Expand One, the standard metal matrix composite (MMC) product; and the higher performance Expand+.

Bangladesh: Holcim Water Protect launched

LafargeHolcim Bangladesh has launched Holcim Water Protect, a water-resistant cement that has been developed in collaboration with the group's Innovation Centre. The company reports that the product is formulated and customised for the Bangladeshi market by leveraging LafargeHolcim Group's Smart Blend Technology (SBT).

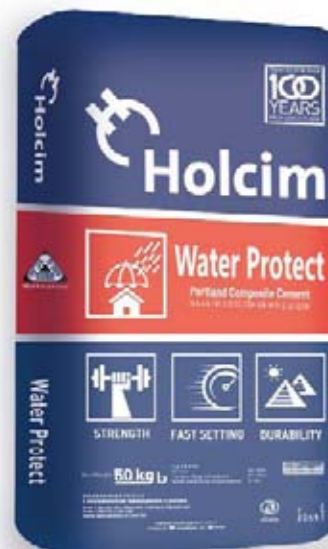
It adds that Holcim Water Protect 'ensures reduced capillary action, resisting the permeation of water thus making it damp and seepage resistant.' The company says that use of the product will result in 'stronger and more durable homes' compared to using OPC.



Greece: FLSmidth services for Titan

Titan Cement has signed a new service agreement with Denmark-based FLSmidth. The agreement covers sustainability, digitisation and productivity support for 17 of the producer's cement plants in Europe, Africa and the Americas.

Titan Group strategic planning director Antonis Kyrkos said "We are constantly on the lookout for more efficient ways of running our operation. With this service partnership agreement, we tap into a wealth of know-how and hundreds of specialists without carrying the full cost. The two-and-a-half-year agreement allows both parties to work strategically on maintenance programmes and upgrade projects based on data and the best allocation of resources."





India: Shiva plant contract for ThyssenKrupp and Larsen &Toubro

Shiva Cement plans to invest around US\$200m towards a new integrated cement plant in Sundergarh district, Odisha. The 1.36Mt clinker unit will also include a 1Mt/yr grinding unit, an 8MW waste heat recovery (WHR) unit, 4Mt/yr crushing plants at its dolomite and limestone quarries, a connecting 10km belt conveyor and a dedicated railway siding with a 12km track to the main network.

ThyssenKrupp Industries India will supply a 4000t/day clinker production line for the project. Larsen & Toubro has been awarded the contract for civil, mechanical and refractory erection work. The unit is expected to create around 500 jobs directly

and indirectly. Commissioning is scheduled to take place by March 2022.

Parth Jindal, the managing director of JSW Cement, the parent company of Shiva Cement, said "The new clinker unit at Shiva Cement in Odisha will provide a strategic advantage to service the needs of our customers in the region and further strengthen JSW Cement's leadership position in the Green Cement category in India."

Shiva Cement intends to use the new plant as a strategic hub to access markets in the east of the country. It is part of the group's aim to achieve a production capacity of 25Mt/yr by 2025.

Germany: Floating solar power

Spain-based Isigenere has installed a 739kW floating solar power plant on a lake at HeidelbergCement's Dettelbach quarry in Bavaria, Germany. The 1896-panel solar power array, Bavaria's largest, will power HeidelbergCement's operations at the quarry.



Image: Floating solar panels at HeidelbergCement's Dettelbach quarry. Source: Isigenere.

Austria: A TEC Flash Dryer for Lafarge Mannersdorf

Loesche subsidiary A TEC has won a contract for the supply and installation of a Flash Dryer for alternative fuels (AFs) in the kiln line of Lafarge Zementwerke's 1.1Mt/yr Mannersdorf cement plant in Lower Austria. The supplier said that it will complete the project in early 2021.

Tanzania: New pozzolana product from Mbeya

Mbeya Cement, part of LafargeHolcim Tanzania, has launched Lafarge Tembo Pozzi, a pozzolana-based cement product. It is intended to replace imports of fly ash, according to local press. At present the country imports 40,000t/yr of fly ash for the construction industry.

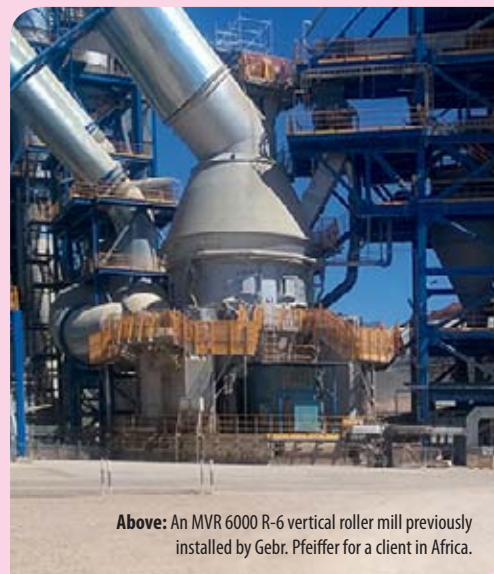
India: Double Shree Cement order for Gebr. Pfeiffer

Shree Cement has ordered two vertical roller mills from Gebr. Pfeiffer for an upcoming clinker line at its Raipur cement plant in Chhattisgarh. They are the 35th and 36th Gebr. Pfeiffer mills to be ordered by the company.

An MVR 6000 R-6 type raw mill will grind 800t/hr of raw material and have a drive power of 8700kW. It will be equipped with an SLS 6000 VR high-efficiency classifier.

An MPS 2800 BK type mill will be used to grind coal at a rate of 28t/hr. This mill will have a drive power of 720kW and will be equipped with the latest version of the integrated SLS 2900 BK high-efficiency classifier optimised for MPS mills.

Gebr. Pfeiffer said "While the core components of the mills as well as the drive units will be supplied by Gebr. Pfeiffer from Europe, the Indian subsidiary Gebr. Pfeiffer (India) will provide components such as the mill and classifier housings, the steel foundation parts as well as internal parts of the classifiers."



Above: An MVR 6000 R-6 vertical roller mill previously installed by Gebr. Pfeiffer for a client in Africa.



France: Ciments Calcia to shrink asset and carbon footprints

HeidelbergCement's subsidiary Ciments Calcia plans to stop clinker production at two plants as part of a Euro400m investment and reorganisation programme for several of its sites in France. Around Euro300m of this will be spent at the integrated Airvault cement plant. The company also intends to: convert its integrated Gargenville cement plant into a grinding plant and shut down its kiln systems and quarry operations; convert its integrated Cruas white cement plant into an automated cement terminal for the distribution of white cement; and adapt the organisation at its French headquarters at Guerville. The plan will cut 162 jobs but create 20 new ones.

"As part of our global business excellence initiative, we intend to further optimise effectiveness, processes and

structures of our French sites," said Dominik von Achten, chairman of the managing board of HeidelbergCement. "We want to considerably speed up the modernisation of our plants in order to enhance our performance in France, while ensuring alignment with the goals of the Paris agreement. This is why we focus our initiatives on the main CO₂-emitting plants in France."



Image: Ciments Calcia's Airvault plant.
Source: Ciments Calcia website.

Germany: Catch4Climate project moves to planning stage

The Catch4Climate project has moved into the planning stage of its oxyfuel pilot plant at Schwenk Zement's Mergelstetten cement plant in Heidenheim, Baden-Württemberg. The group, which also comprises Buzzi Unicem's subsidiary Dyckerhoff, HeidelbergCement and Vicat, signed a letter of intent with the state's Prime Minister in Stuttgart in mid-November 2020.

The consortium intends to build and operate its own demonstration plant on a semi-industrial scale, to use the oxyfuel process to capture CO₂. In the future, the captured CO₂ will be used to produce so-called 'reFuels,' climate-neutral synthetic fuels such as kerosene for air traffic, with the help of renewable electrical energy.

The cement producers formed CI4C – Cement Innovation for Climate in late 2019. The aim of the Catch4Climate project is to create the basis for a large-scale application of CO₂ capture technologies in cement plants enabling the later use of CO₂ as a raw material in other processes such as carbon capture and utilisation/storage.



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Spain: Solar plant for Cosmos

Cementos Cosmos has partnered with France-based EDF energy to establish a 6.2MW solar power plant in Toral de los Vados, León, at a cost of Euro4m. Local press reports that the plant intends to use 9GWh/yr of energy from the new unit. This will provide 15% of the electrical power requirements at the cement plant. The 14,000-panel project is scheduled for completion in mid-2021.



Germany: Low-CO₂ cement from Buzzi Unicem's Dyckerhoff

Buzzi Unicem subsidiary Dyckerhoff has received general building inspection approval from the German Institute for Building Technology for the Portland composite cement CEM II / CM (S-LL) produced by its Amöneburg and Deuna factories. It is the first to receive approval to sell this class of cement, which contains both slag and limestone, in Germany.

The use of CEM II / C cements reduces CO₂ emissions from building with cement and concrete due to their lower clinker factor. CEM II / CM (S-LL) emits 39% less CO₂ per tonne of cement compared to CEM I cement. Compared to the current binder mix, CEM II / C cements have the potential to reduce CO₂ intensity by 25%.



Ireland: CRH earnings rise despite pandemic

CRH recorded earnings before interest, taxation, depreciation and amortisation (EBITDA) of Euro2.8bn in the first nine months of 2020, up by 2% year-on-year on a like-for-like basis from the corresponding period of 2019. The company said that it expected full-year EBITDA in 2020 to exceed 2019 levels on a like-for-like basis at over Euro3.6bn. Sales fell by 3% to Euro17.0bn but the group added that it had 'continued strong cash generation.'

CEO Albert Manifold said "Markets continue to be impacted by the global pandemic and, while we have seen some lower activity levels, I am pleased to report further improvement in trading performance, with an advance in both profitability and margins. The outlook for the coming months remains uncertain and visibility is limited, however I am confident that we are well positioned for the challenges and opportunities that lie ahead."



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Germany: VDZ presents 2050 carbon neutrality roadmap

The German Cement Works Association (VDZ) has published a study entitled 'Decarbonising cement and concrete: a CO₂ roadmap for the German cement industry,' detailing the planned transformation to cement industry-wide carbon neutrality by 2050.

The study says that a decarbonisation scenario based on conventional reduction measures would cut carbon dioxide (CO₂) emissions by 36% between 2019 and 2050. Chief executive officer Martin Schneider said that the sector is already 'reaching the limits of its potential for any further reduction in

the volume of CO₂, particularly as the process-related emissions specifically associated with clinker production cannot be lowered by employing conventional means.' As such, the association proposed a 'completely new approach to the production of cement and its use in concrete' in order to realise full climate neutrality. It proposes that cement producers help to reduce concrete's clinker factor, capturing the remaining CO₂ from necessary cement production.

Schneider said "We have placed the decarbonisation of cement and concrete at the heart of our activities. It will be essential to achieve an integrated approach, incorporating the entire construction value chain." In order for this more radical scenario to work, he added "Another essential factor will be to involve society as a whole in this process."

Image: VDZ's Düsseldorf Headquarters.
Credit: Julia Vogel.



Switzerland: First cement sector sustainability bond

LafargeHolcim has launched a Euro850m sustainability-linked bond with a coupon of 0.5% maturing in 2031. It says it is the first bond of its kind in the building materials industry and that it is part of its commitment to reach its 2030 CO₂ reduction target.

"We are proud to be the first in our industry to launch a sustainability-linked bond. The order book of Euro2.6bn demonstrates the confidence of investors in the company's financial strength, strategy and ability to deliver on its sustainability targets," said Géraldine Picaud, Chief Financial Officer of LafargeHolcim.

Bond investors will be entitled to a higher coupon should the company not meet its objective, incentivising LafargeHolcim to reach its target of 475kg net CO₂ per tonne of cementitious material by 2030.



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GLOBAL CEMENT NEWS: EUROPE



Italy: Cementir sales rise over first nine months

Cementir Holding sold 7.7Mt of grey cement, white cement and clinker in the first nine months of 2020, up by 11% year-on-year from 6.9Mt in the first nine months of 2019. Earnings before interest, taxation, depreciation and amortisation (EBITDA) declined by 2% over the period, to Euro178m from Euro182m, while sales also declined, by 1% to Euro897m from Euro906m.

One notable region where the trend was reversed was Egypt, where, in spite of a 2.5% fall in cement and clinker volumes, EBITDA rose by 40% to Euro6.81m from Euro4.86m and sales rose by 16% to Euro31.3m from Euro27.1m. EBITDA also rose in the Nordic and Baltic, Turkey, China and Asia-Pacific regions.

CEO and Chair Francesco Caltagirone said "Results significantly improved in the third quarter, with cement up by 19% and EBITDA up by 12% compared to the third quarter of 2019."



UK: CMA writes to Hanson over data breach

The Competition and Markets Authority (CMA) has written to Hanson UK, part of Heidelberg-Cement, to express concern and set out actions to prevent a recurrence of a breach of market data, which occurred on 11 September 2020. Hanson made a payment in error to the Mineral Products Association (MPA). During the transaction, Hanson inadvertently revealed ascertainable cement volume data, in breach of the CMA's Cement Market Data Order.

The company has explained that the breach arose due to an administrative error.



Buzzi Unicem

A letter from Buzzi Unicem

Following the publication of the article *Sustainability in cement: Who's on top?* in the October 2020 issue of *Global Cement Magazine*, the publishers received a letter from Buzzi Unicem, which is reproduced here in full, with permission of the letter's signatories.

With regard to the article 'Sustainability in cement: Who's on top?' published in the October issue of the *Global Cement Magazine* - Sustainability section, we would like to bring to your attention the position of Buzzi Unicem, a company mentioned in the analysis.

The observation concerns our constant commitment to provide complete, accurate information in a transparent manner, in line with the international GRI standard. In fact, we seek to facilitate the comparison of our company's performance with that of other businesses in the sector, to better understand which specific areas we need to improve in and how.

While we understand that for the sake of brevity only a few parameters were used to assess a company's sustainability (a more complete and accurate comparison would have required a broader report), we found that the strong dependence on local market conditions was not taken into account for some of them (alternative fuel use, biomass fuel use, clinker factor), instead implying that they depend exclusively on choices made by the producers.

Based on the article published we consider it appropriate to point out some factors that we believe to be important:

- The use of alternative fuels depends first and foremost on their availability and on the granting of permits as they are considered 'waste,' such permits being issued by local authorities according to more or less stringent rules that vary from place to place.
- Biomass content is strongly influenced by the level of separate collection achieved in a given country.

- The clinker factor is conditioned by the availability of clinker substitutes (fly ash – precisely in the areas of the world most attentive to reducing environmental impacts - is disappearing; slags and pozzolanas are available at competitive prices only when relatively close to the plants) and above all by the regulatory framework in force in each country. For example, the US market basically prefers pure Portland cements, while the European market allows for a wide use of mixed cements with the result that the clinker factor can differ by up to 20 points.

With a view to transparency and greater clarity, the ranking published, which has some errors/inaccuracies that, while irrelevant to the results, would have been better to avoid, should have taken into consideration the aspects mentioned above, not merely comparing aggregated data. Precisely for this reason, for years now in its annual reports Buzzi Unicem has provided the details of the main sustainability indicators broken down by country.

We hope that in the future an expert and authoritative journal such as *Global Cement Magazine* will take note of these suggestions and deal more attentively with the issues to allow for a constructive dialogue and to avoid any negative impacts on the reputation of companies that are actively committed to improving their level of sustainability.

Thank you for your attention.

Sincerely Yours,

Michele Buzzi
Chief Executive

Massimo Paris
Quality Assurance and
Sustainability Director

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Peter Edwards, Global Cement Magazine

Cement in Northern Europe

Global Cement kicks off 2021 with a look at the cement sectors of Denmark, Estonia, Finland, Latvia, Lithuania, Norway and Sweden.

While there are various definitions of Northern Europe, this review takes in four Scandinavian countries - Denmark, Finland, Norway and Sweden - plus three in the Baltic - Estonia, Latvia and Lithuania. Six of these seven countries are EU Member States. The exception is Norway, which, while not a member, is closely aligned with the bloc via its membership of the European Economic Area.

The seven countries are home to a total of 32.8 million people. Nearly a third of these (10.1m) live in Sweden, with Denmark (5.8m), Finland (5.5m) and Norway (5.4m) each home to similar numbers of people. Of the Baltic countries, Lithuania is the most populous (2.8m), with 1.5 times as many people as Latvia (1.9m) and more than twice as many as Estonia (1.3m).

Modern economies

The seven countries in this review all have market economies. The largest economy among them is that of Sweden (US\$556bn) and the smallest is that of Estonia (US\$30.7bn). Those in Scandinavia are characterised by high taxes that fund extensive social welfare programs. They have among the highest standards of living in the world with GDP/capita rates in the range of US\$50,000-80,000.

Having gained independence upon the collapse of the Soviet Union in the early 1990s, the Baltic countries - Estonia, Latvia and Lithuania - have smaller economies and GDP/capita rates in the range of US\$18,000-23,000.

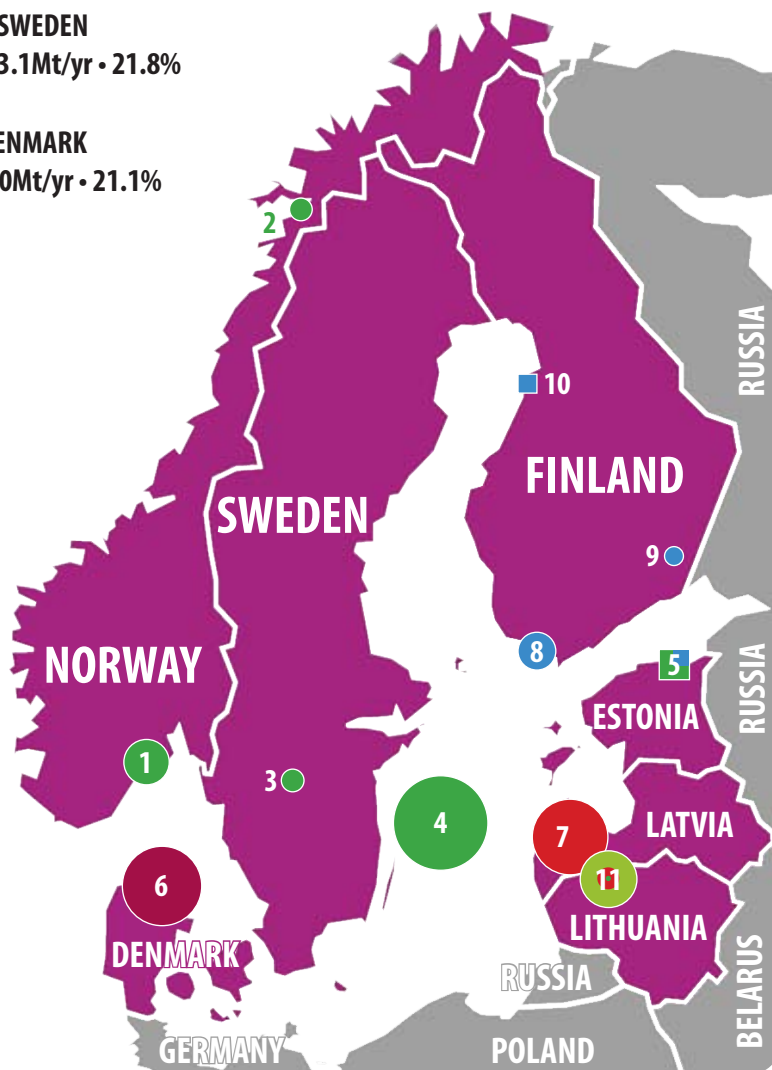
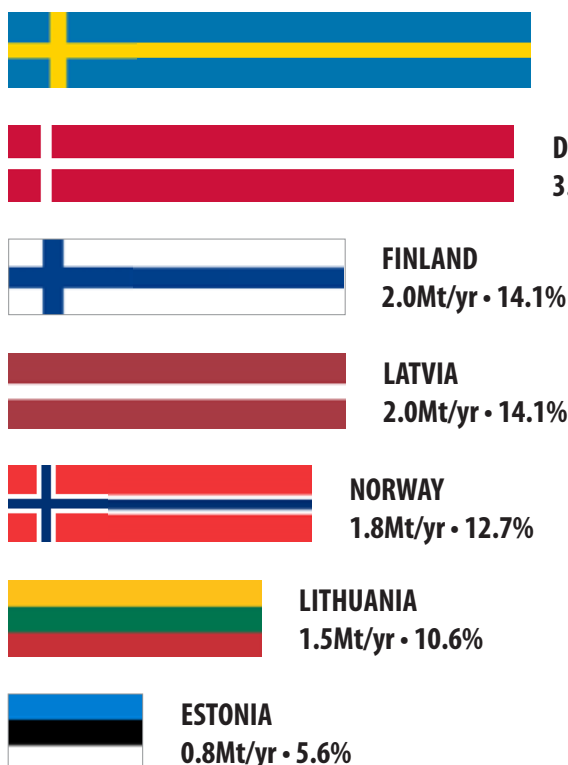
Cement sector - By country

There are 10 cement manufacturing plants that share a capacity of 13.7Mt/yr in the seven countries in this review, plus one 0.5Mt/yr slag grinding plant. Of the seven countries, Sweden has the largest cement sector, with 3.1Mt/yr. Denmark, despite having just one plant, has the second-largest cement sector (3.0Mt/yr). Finland and Latvia are tied with the third-largest industries (2.0Mt/yr) (See Figure 1).

Cement sector - By company

The region defined in this review is unusual in that each country only has one cement producer. Three countries - Estonia, Norway and Sweden - have HeidelbergCement subsidiaries as the backbone of their cement industries. The German multinational is the dominant force in the region, with a share in 5.64Mt/yr of capacity across six plants. This is sufficient to give it almost 40% of capacity in the region.





The second-largest producer in the region is Cementir Holding (3.0Mt/yr), via its Aalborg Portland Cement subsidiary in Denmark. Schwenk Zement, which operates a plant in Latvia (2.0Mt/yr) and 34% of Akmenės Cementas in Lithuania (0.5Mt/yr), is third-largest (2.5Mt/yr). Ireland's CRH is the fourth-largest producer, with 2.2Mt/yr across its Finnsementti operations and its 25% stake in Estonia's Kunda Nordic Tsement. Akmenės Cementas is the smallest producer. It is partly owned by Germany's Schwenk Zement (34%) and by HeidelbergCement (8.65%). Local investors hold the remaining 57.35%. LafargeHolcim is not present in the region and Cemex left in 2019.

Denmark

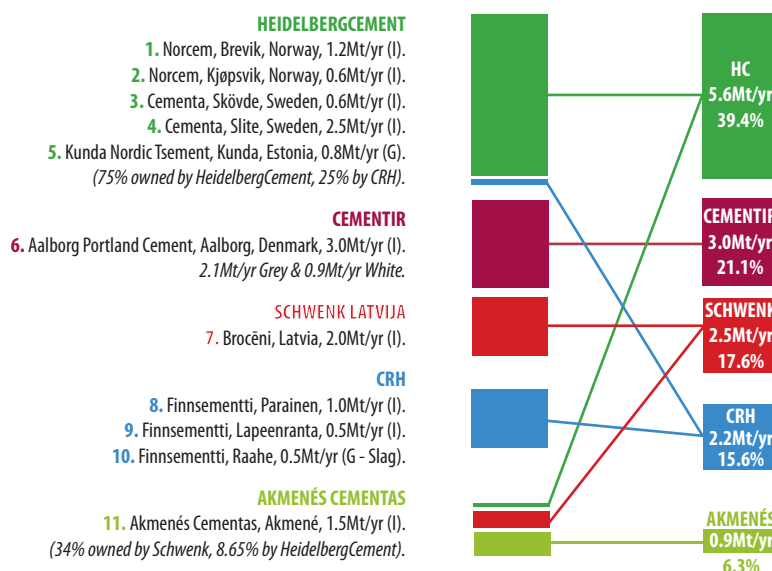


Denmark has a single cement producer, Aalborg Portland Cement, which has made cement at its Rørdal site near Aalborg, Jutland, since 1889. Today it has seven kilns, two for grey cement (2.1Mt/yr total) and five for white cement (0.9Mt/yr). It is part of Cementir Holding, the Italian multinational and global white cement market leader. Prior to its acquisition by Cementir in 2004, it was owned by Blue Circle (1990 - 2000) and FLSmidth (2000-2004).

Today the Rørdal plant supplies the Danish and wider Scandinavian grey cement markets, including with low-clinker cements such as its FUTURECEM™ product. It is a major producer of white cement, exporting to more than 70 countries around the

This Page - Figure 1: Cement plants in Northern Europe. Plants listed below and colour coded by main shareholder (left column), with overall capacity shown on the right. **Source:** Global Cement Directory 2021.

● = 1Mt/yr (Integrated) ■ = 1Mt/yr (Grinding)





Above: The Aalborg Portland Cement plant in Rørdal, near Aalborg, is the only cement plant in Denmark.
Source: Cementir.

world. Aalborg Portland Cement also controls seven terminals in Denmark, with 35 ready-mix concrete plants controlled by its subsidiary Unicon. Cementir reports that the plant's alternative fuel substitution rate is 60%, while it supplies 36,000 local homes with hot water for heating. This will rise to 50,000 in 2022. It is also building a 8MW captive wind farm.

While it has no production capacity in Denmark, HeidelbergCement has imported cement into the country since 2006 via its DK Cement subsidiary. Cement originates from its Norwegian and Scandinavian plants and is imported via its Randers terminal in Jutland.

Below: The Kunda Nordic Tsement plant produced its last clinker in early 2020. It made 571,000t of cement in 2019, its last full year of clinker manufacturing.
Source: Kunda Nordic Tsement website.

Estonia



There is only one cement manufacturing plant in Estonia, at Kunda on the country's north east coast. Cement has been made in Kunda since

1870, with three kilns in operation by the 1920s. Production was halted between 1939 and 1942 due to the removal of equipment from the site during the Second World War. Extensive renovation came in 1957-1958 under Soviet control, when the company was known as Red Kunda. The plant made more than 1Mt of cement in a single year for the first time in 1973. Upon the collapse of the USSR in 1991, the company was renamed Kunda Nordic Tsement in 1992. It underwent a major overhaul in the late 1990s under the Swedish Scancem group, before that company became part of HeidelbergCement in 1999. Today, CRH owns 25% of the company's shares.

Since March 2020 the former integrated site has only ground clinker from other facilities. The company said that the closure of the wet kiln was forced by the rising cost of emitting CO₂ under the EU Emissions Trading Scheme (ETS), which made continued clinker production uneconomic at the site. Prior to its closure the Kunda plant emitted more than 1050kg of CO₂ per 1t of cement, way in excess of the EU average of 766kg/t.

Estonia made 129,000t of cement in the first half of 2020, down by 31% year on year from 187,000t in the first half of 2019. Eesti Statistika has reported that the sharpest decline was in June 2020, by 41% year-on-year to 25,800t from 43,700t.

Schwenk Zement serves the Estonian market via its network of terminals in Finland, Sweden and Norway.

Finland



Finnsementti is the only producer of cement in Finland. It traces its history back to 1914 and the commissioning of the country's first cement plant in Parainen, in the south west of the country. Previously also running plants in Lohja Kalkkitehdas Osaakeyhtiö (1914), Lappeenranta (1938) and Kolari (1968), the company has since shrunk to just two integrated cement plants at Parainen (1.0Mt/yr) and Lappeenranta (0.5Mt/yr). It also operates a 0.5Mt/yr slag grinding plant in Raahe on the Gulf of Bothnia.

The company was controlled by Scancem between 1993 and 1999. Unlike some of Scancem's other assets, the Finnish assets were sold to the Irish group CRH. In 2021 the company supplies the vast majority of cementitious materials in the country.



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GLOBAL CEMENT: NORTHERN EUROPE



As well as its three cementitious product sites, Finnsementti also operates five slag and cement terminals across Finland at Kirkkonummi, Mariehamn, Pietarsaari, Pori and Oulu (shown right).

Germany's Schwenk Zement supplies cement to the Finnish market via its Embra subsidiary. It imports material into Loviisa, Naantali and Joensuu. Scandinavian Cement also owns a cement import terminal in Hamina.

Latvia

Cement production in Latvia dates back to 1867 with the establishment of the JSC C CH Schmidt plant in Riga. A new plant in Brocēni came online in 1938. Initially with a capacity of 60,000t/yr, two Polysius kilns were added in the early 1940s but the plant suffered damage during the Second World War.



The Brocēni plant was renovated from 1947 onwards, during Soviet control of the country. Both plants diversified during the second half of the 20th Century, leading to the production of roofing slates, bricks, lime, limestone and ceramic tiles, as well as cement. The Riga plant has since closed.

Upon independence in 1991, cement demand in Latvia dropped significantly. A number of owners took on the Brocēni plant, with RMC taking over in the late 1990s. In 2005 Cemex took over the reins from RMC, with plans for investment in Latvia.

Above: Finnsementti's Oulu terminal was opened in 2012.

Source: Finnsementti website.



Right: Schwenk Zement took over the Brocēni plant in Latvia from Cemex, as well as an extensive terminal network in Northern Europe, in 2019.
Source: Schwenk Latvija website.



Right: View from the pre-heater tower at the Akmenės Cementas plant in Lithuania.
Source: Global Cement.

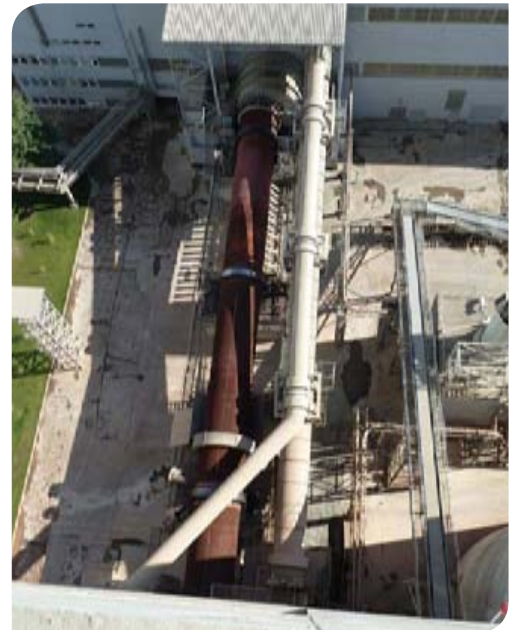
A new Euro300m plant began production at the Brocēni site in 2010 after a three year construction project. Another nine years later, Cemex decided to exit the Latvian market as part of efforts to reduce its debt, selling the plant, plus an extensive Northern European terminal network to Germany's Schwenk Zement in 2019.

In 2021 the 2.0Mt/yr plant is one of the largest in Northern Europe. As well as supplying the domestic market, around 70% of the cement made in Brocēni is exported to Lithuania, Estonia, Sweden, Finland and Belarus. HeidelbergCement operates a cement terminal in Riga.

Lithuania



Like its northern neighbour, Lithuania has a single integrated cement plant, the Akmenės Cementas plant in Akmenė. The company has produced cement on the same site since 1952. During the Soviet era, the plant was run as a wet process facility, with up to eight kilns that supplied cement all over the USSR.



After Lithuania gained its independence in 1991, the plant underwent a period of rationalisation to adjust to market demands and was progressively upgraded to modern standards. A new 4500t/day dry process line from Germany's KHD Humboldt Wedag has been in operation since 2014.

The plant is predominantly owned by local investors, with a 34% stake held by Schwenk and an 8.65% stake held by HeidelbergCement, which also operates terminals in Kaunas and Klaipėda.

Norway



As elsewhere in Northern Europe, HeidelbergCement is the dominant force in the Norwegian cement sector. It operates two integrated plants via its Norcem subsidiary. The original Norcem was founded by the merger of three Norwegian cement manufacturers in 1968. It became part of Scancem in 1996 and then HeidelbergCement in 1999.

The larger of Norcem's two plants is in Brevik, around 160km to the south west of Oslo. It was founded as Dalen Portland Cementfabrik in 1916 and made its first cement in 1919. Today it is a

Right: The Norcem Kjøpsvik plant is the most northerly in the world, lying just inside the Arctic Circle.
Source: Norcem.



Opposite Page: The Cementa Slite plant, the largest in Northern Europe.
Source: Cementa website.



1.2Mt/yr facility that could become the first in the global cement sector to fully decarbonise cement production. Its long-standing carbon capture and storage (CCS) project with Aker Solutions has been in development since 2010.

The project will use amine-based sorbents to selectively capture CO₂ from the plant's exhaust stream. The partners signed an agreement with Aker Solutions to order a CO₂ capture, liquification and intermediate storage plant for the plant in June 2020. In September 2020, the Norwegian government introduced a bill to parliament to allow funding for industrial scale implementation of the project. If enacted, the legislation will provide for the majority of required funding, estimated at more than US\$820m for installation and operation for five years. It is anticipated that the project will begin to capture and store CO₂ in 2023 or 2024.

Around 1300km to the north is Norcem's Kjøpsvik plant. At 68.1° north, it is the world's most northerly cement plant and lies just within the Arctic Circle.

Schwenk Zement operates strategic terminals in Norway in Oslo, Bergen, Stavanger and Etne.

Sweden



As in Norway, HeidelbergCement is the dominant force in the Swedish cement sector. It operates two integrated plants under its Cements subsidiary. The largest is located in Slite on the island of Gotland in the Baltic Sea. At 2.5Mt/yr it is the largest of the plants in this review and is perfectly situated for marine shipments to mainland Sweden via Cementa's 17 domestic cement terminals. The plant uses around 60% alternative fuels and is involved in the CemZero project with Vattenfall, which seeks to electrify the cement production process.

Cementa also operates the 0.6Mt/yr Skövde plant in the south of the mainland. It closed its 0.3Mt/yr Degerhamn plant on Öland at the end of April 2019. The unit continues as a terminal. Schwenk Zement operates terminals at Surte, Landskrona and Västerås.



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US: PCA to develop 2050 carbon neutrality roadmap

The Portland Cement Association (PCA) says it plans to develop a roadmap by the end of 2021 to help its member companies achieve carbon neutrality across the concrete value chain by 2050. It maintains that 'concrete is critical to building a sustainable future' and reinforced the benefits of concrete such as energy efficiency, lower life-cycle costs, durability and resilience. The roadmap is intended to solve problems facing the industry such as developing new technologies to reduce energy consumption and to develop and adopt related regulations.

"As the second most used material on earth and a cornerstone of our economy, we understand the critical role cement and concrete play in our nation's future, and we are committed to an industry-wide effort that achieves carbon neutrality," said Tom Beck, Chairman of the PCA and President of Continental Cement. Rick Bohan, Vice President, Sustainability for the PCA added, "Developing a roadmap to carbon neutrality by 2050 further demonstrates our industry's commitment to be a part of the solution and tackle this global issue."

The PCA says that the industry has reduced energy consumption by 35%, emissions intensity by 11% and has increased its use of alternative fuels since 1990.

US: PCA 2020 Safety Innovation Awards

The Portland Cement Association (PCA) has announced the winners of the 2020 Safety Innovation Awards, which recognise 'creative safety-enhancing projects in the cement industry' across five categories.

Buzzi Unicem USA's Joliet, Illinois cement terminal won the distribution award for its barge entry ladder, which reduced fall hazards associated with unloading cement from barges. Ash Grove Cement's Durkee, Oregon cement plant won the general facility award for its burner pipes cart upgrade, which reduced safety hazards associated with moving cement kiln burner pipes. Further hazard reductions were made by Buzzi Unicem USA's Chattanooga, Tennessee cement plant's finish mill access platform and the Monarch Cement Company's Humboldt, Kansas cement plant's noise reduction upgrade, which jointly won the milling/grinding award. The pyroprocessing award went to GCC of America's Pueblo, Colorado plant for its semi-automated clinker feeding system, while the quarry award went to Ash Grove Cement's Louisville, Nebraska plant for its dump box hardened material extraction tool.

PCA President and CEO Michael Ireland said "Our industry prioritises the safety of its employees above all else. We are proud of our members' efforts to pursue excellence in safety innovation for their company and their colleagues."



Colombia: Sales fall for Argos

Grupo Argos subsidiary Cementos Argos has reported a 13% year-on-year fall in cement sales volumes to 10.7Mt in the first nine months of 2020 from 12.3Mt in the first nine months of 2019. As a result, revenues fell by 5% to US\$1.85bn from US\$1.94bn, partially netted by the price improvements in Colombia and in the US, together with devaluation of the Colombian Peso.

Earnings before interest, taxation, depreciation and amortisation (EBITDA) fell by 3% to US\$342m from US\$353m. The company said that "Volumes were affected by the hurricanes and intense rains in the US, together with the gradual recovery of the Colombian operations that still remain affected by Covid-19 lockdowns."

Meanwhile, Cementos Argos is celebrating its inclusion in the Dow Jones Sustainability Index for the eighth consecutive year. The company said that the listing acknowledges its 'good practices in economic, environmental and social matters.' Its owner Grupo Argos came second in the materials sector, which accounted for 4.3% of the total index weight, while the company itself came third.

Colombia: First South American paper bag plant for Mondi

Austria-based Mondi Group plans to open its first South American paper bags plant in Cartagena in January 2021. The unit will start with one production line that has a capacity of approximately 50m bags/yr. The bags will be targeted at the cement, chemical and food industries. The group said that the plant is located in a free-trade zone with good access to ports in Panama, the east coast of the US, the Gulf of Mexico and other Caribbean ports.

"We are excited to be expanding our footprint to Colombia, helping us to provide innovative, sustainable and customer-focused paper packaging solutions to customers in South America," said Claudio Fedalto, Chief Operating Officer for Paper Bags at Mondi.



US: Energy Stars for Buzzi

The US Environmental Protection Agency (EPA) has awarded its 2020 Energy Star® certification to Buzzi Unicem USA plants in Chattanooga, Tennessee and in Festus, Missouri. This certification is awarded to a facility for superior energy performance in comparison to similar plants in the US. This marks the 12th consecutive year that the Chattanooga and Festus plants have received certification.

In order to qualify for Energy Star® recognition, cement plants must score at least 75 on the Energy Performance Indicator (EPI) system used by the EPA to measure energy efficiency. In addition, the plant must have a satisfactory environmental compliance record for the past three years. Receipt of the Energy Star certification means that these two plants perform in the top 25% of similar facilities in the US.



Uruguay: Artigas to upgrade Minas plant

Cementos Artigas has announced a US\$40m investment in its Minas clinker plant. The project will involve the installation of a vertical roller mill and cement silos to convert the site into a fully-integrated facility. At the same time, the company will close its Sayago grinding plant, which currently grinds clinker from the Minas plant. The combination of the clinker production and grinding capabilities is expected to lead to a 40% reduction in production costs. Construction will start in early 2021, with commissioning anticipated during 2022.

Julio Rodriguez, CEO of major shareholder Cementos Molins, said, "With this new investment we continue to develop our strategy, in which sustainability and respect for the environment is the first priority. At the same time, it is also a clear sign of our long-term commitment to the Uruguayan market, in which we have been present since 1991."



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Brazil: Votorantim sales rise by nearly a quarter over first nine months of 2020

Votorantim Cimentos' consolidated net sales in the first nine months of 2020 were US\$2.17bn, up by 23% year-on-year from US\$1.76bn in the corresponding period of 2019. However, its profit fell by 61% to US\$28.7m from US\$73.9m

Cement sales in the third quarter of 2020 rose by 15% year-on-year to 9.7Mt from 8.4Mt in the third quarter of 2019. The company reported increased sales volumes in Uruguay, the US and Canada, and an 18% increase in Brazil, 'maintaining the strong pace' that it saw at the end of the first half of 2020. The company said, "The significant emergency aid from government during this period and its use in the direct purchase of construction inputs, including cement, has supported civil construction alongside the current historically low interest rate. In addition, people continue to invest in improving their homes, with retail sales of building materials increasing nationally."

The company's third quarter adjusted earnings before interest, taxation, depreciation and amortisation (EBITDA) rose by 94% to US\$281m in 2020 from

US\$145m in 2019. It said, "The economic opening after the initial restrictions of the Covid-19 pandemic turned out more positively than anticipated in the third quarter of 2020, while the on-going recovery is projected to be gradual, considering the uncertain scenario. Currently, global gross domestic product (GDP) is projected to decrease 4% in 2020 - less severely than the previously published data, although uncertainty around the recovery path for upcoming years due to the second wave of Covid-19 remains considerable in some countries, alongside viability of additional fiscal and monetary stimulus."



Image: Anchorage, Alaska.

US: Anchorage terminal due by 2022

Austin Quinn-Davidson, the acting mayor of Anchorage, Alaska, has announced that the city's new cement and petroleum terminal at the Port of Alaska will be completed by late 2021. The Anchorage Daily News has reported that the estimated US\$203m terminal will last for 75 years and will be able to endure future seismic events like the earthquake that damaged the port in November 2018.

Municipal manager Bill Falsey said, "Even in these challenging times, we can still do big and important and challenging things." He estimated the eventual total cost of an upgrade to the port would be around US\$1bn.

Canada: Death at Lafarge Richmond

The Royal Canadian Mounted Police's serious crime unit has launched an investigation into the death of one person at Lafarge Canada's Richmond, British Columbia integrated cement plant on 19 November 2020. The Vancouver Sun newspaper reported that the incident caused the plant to be evacuated.

Spokesperson Jill Truscott said, "We are in shock and are extremely concerned about the impact to this individual's family and friends. Steps have been taken to protect all employees on site and the surrounding community."

WorkSafe British Columbia is conducting a separate investigation.

Bolivia/Paraguay: Supply coordination

The Bolivian-Paraguayan Binational Chamber of Commerce & Industry is working with Bolivia-based FANCESA to export cement to Paraguay via the Parana-Paraguay Rivers Inland Waterway. It is also promoting exports from the new ECEBOL integrated cement plant at Caracollo in Oruro, Bolivia.



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The conference language is English.

American Cement Enquiries

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Programme and speakers:
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Mary Beth Kramer, Kramer Consulting

Titan Florida earns global cement sector's first TRUE Platinum Zero Waste Certification

Titan Florida's Pennsuco plant diverts 97% of waste away from landfill and incineration...

Titan Florida's plant in Medley - known as Pennsuco - is the first cement plant in the world to earn the highest level of certification possible under the Total Resource Use and Efficiency (TRUE) rating system for zero waste. Administered by Green Business Certification Inc. (GBCI), TRUE helps facilities around the world to define, pursue and achieve zero waste goals while becoming more resource-efficient.

"Titan Florida recognises that by pursuing zero waste it is helping to build a sustainable future for us all," said Mahesh Ramanujam, President and CEO of the US Green Building Council and GBCI. "Waste impacts all facets of a business. Changing the way we use resources delivers public health benefits, reduces our environmental impact and advances a greener economy."

Facilities achieve TRUE certification by meeting program requirements and accruing credits on a scorecard. Each site is then audited and must submit

annual diversion data that demonstrates continuous compliance to achieve certification at four possible levels: Certified, Silver, Gold or Platinum.

To achieve the most rigorous level of certification, TRUE Platinum certification, the Pennsuco Complex accrued additional credits for starting programmes like: repurposing used office supplies and materials, grass recycling/mulching, composting, and xeriscaping, the process of landscaping that reduces or eliminates the need for supplemental water from irrigation, among other major initiatives.

For example, as part of the credit for waste reporting, the Pennsuco Complex became an active participant in the US Environmental Protection Agency (EPA) Waste Wise Program, where diversion data is submitted to the EPA annually and goals are set for the following year. For its purchasing credit, Pennsuco adopted an Environmentally Preferred Purchasing guideline that is authorised by employees and management and applied to suppliers of the cement plant campus. All told, the Pennsuco Complex diverted approximately 97% of its waste from landfill and incineration in 2019.

"It's not just about receiving an award," said Allyson Tombesi, the Environmental Engineer at Titan Florida who led the zero waste recertification. "Being zero waste is about considering how we can minimise our impacts so future generations have the opportunity to live in a sustainable environment. The program was created with a goal to encourage our employees to lead a zero waste lifestyle at both the plant and at home. We hope to inspire our employees and our industry to take action that benefits the future of our planet."

"Clearly, Titan has a corporate commitment to zero waste," says William Kissel, Director of Environment & Land, Titan Florida. "Earlier this year, Titan's sister plant in the US, Roanoke Cement Company, earned similar certification as Pennsuco, becoming the world's second cement plant to earn TRUE Gold Zero Waste certification. Now, Pennsuco sets the bar higher by achieving TRUE Platinum certification. Titan America continues to be recognised as an industry leader in sustainability and environmental stewardship."



Right: Allyson Tombesi, Environmental Engineer at Titan Florida.



Howden

Successful fan retrofit in South America

Howden reports on a rapid fan retrofit project for a client in South America...

In 2020 a cement plant in South America was in need of a fan retrofit in order to reduce its energy consumption. The retrofit had not been allocated as a capital expenditure project. In addition, in order to coincide with a planned shut down, delivery would be needed within just 35 days.

Few OEMs could accommodate these challenges, but Howden was the right choice for the project. This plant also became one of Howden's first customers to take full advantage of the project financing option.

Fan data

This retrofit project involved replacing the rotor, shaft and input cone of the pre-heater kiln exhaust fan. Technical data is summarised in Table 1.

Model	Howden F18 TDR 420SH387 3TD8A
Application	Pre-heater kiln exhaust fan
Power (kW)	4500
Flow (m ³ /hr)	1,101,554
Weight (t)	22.0
Rotor Ø (mm)	3870

Supply conditions

This project was financed by Howden. Equipment and installation was provided by Howden without initial disbursement from the customer. Monthly payments, based on savings, were set up.

Energy efficiency

The project will result in an overall reduction of 644kW/hr in energy consumption. This will provide savings of approximately US\$260,000/yr for the customer. The return on investment will be realised in approximately three years.

Delivery terms

The project required delivery in only 35 days, in time for the installation of the kiln outage. The equipment weighs 22t with a rotor diameter of 3870mm.

Remote monitoring

To track the equipment's performance, a remote monitoring panel, developed by Howden, was installed to allow the remote analysis of the ventilator's operating parameters, including energy consumption.



Left - Table 1: Summary fan data for the South American project.



Left: The new fan awaiting installation at the South American site.



Chris Landers, Jeff Shelton & Marina Silva, Integrated Global Services (IGS)

Eliminating snowmen at a cement plant in Indiana

When clinker builds up, it often forms a snowman. If left unchecked, the snowman will grow and collapse, which can lead to significant damage and production problems...

Air cannons are commonly employed to prevent snowman build-up. The standard recommendation is a 70L reservoir tank with a fan jet nozzle. That recommendation, however, often lacks the power necessary to provide effective cleaning. Increasing the volume of the tank and the velocity generated by the nozzle ensures that the air cannon will have enough power to eliminate snowmen.

2-3 Snowmen per week

A 1.3Mt/yr cement plant in Indiana, US, had several 150L air cannons with fan jet nozzles installed in its clinker cooling. Despite an abundance of these, 2-3 snowmen formed every week. The staff had to use shotgun blasts and high-pressure water, costing the plant vast amounts of time and money.

In 2018, the plant tried a different approach. It adjusted the chemistry of the process and replaced all air cannons with IGS 300L air cannons with high velocity nozzles. The improvements were dramatic. Following the changes, the plant ran for eight months without snowmen-related delays. Fewer build-ups were formed and, when snowmen did arise, the cannons eliminated them. The plant no

longer employed shotgun blasts or high-pressure water washing, which has made the plant a safer place and eliminated significant production and maintenance costs.

A typical story

The story of this plant is quite typical. Not all plants can adjust the chemistry of their process, but most can improve their air cannon efficiency. The simplest and most effective way to upgrade the system is to increase the volume of the reservoir tank and the velocity of the discharge. That is often sufficient to eliminate build-up problems.

Why did this approach work?

This new approach worked because volume (mass) and velocity are the most important variables for cleaning efficiency. This is because both are positively correlated to force, momentum and kinetic energy, the three main components of power.

$$\text{Force} = \text{mass} \times \text{acceleration} \quad (\text{Eq. 1})$$

$$\text{Momentum} = \text{mass} \times \text{velocity} \quad (\text{Eq. 2})$$

$$\text{Kinetic Energy} = 0.5 \times \text{mass} \times \text{velocity}^2 \quad (\text{Eq. 3})$$

Type of Air Cannon	Pressure	Type of Nozzle	Distance moved at 762mm (3ft)	Distance moved at 152.4mm (6ft)
70L	689kPa (100psi)	Fan Jet	69.9mm (2.75inch)	No movement
150L	689kPa (100psi)	Fan Jet	177.8mm (7inch)	76.2mm (3inch)
150L	689kPa (100psi)	High Velocity	6184mm (243.5inch)	4343mm (171inch)

Above - Table 1: Distance travelled by 66.8kg (145lb) sled when fired by 70L and 150L cannons at different distances and using different nozzles, using compressed air.

A higher volume increases the duration of an air cannon's blast. This leads to a greater cleaning area. Increasing the volume from 70L to 150L increased the cleaning force (distance sled was moved) by a factor of 2.5 at 762mm (3ft). Also importantly, it was also found that the cleaning force at 1524mm (5ft) was greater than at 76.2mm (3ft) for the 70L cannon, where cleaning was increased by a factor of 2.

The impact on the cleaning area is magnified greatly by increasing the velocity with a High Velocity Nozzle. Velocity increase is a key for kinetic energy (see Eq. 3, above). A two-fold increase in velocity yields an increase in kinetic energy of 4 times. The combination of increased volume and velocity result in much greater cleaning power, and the difference between success and failure.

This difference can be clearly seen when the two nozzles are fired directly against a cement block. The 70L cannon with a fan jet nozzle pushed the block but does not break it. In contrast, the 150L cannon with a High Velocity Nozzle crushed the block.



An air cannon with more force, more momentum and more kinetic energy will clean more powerfully.

Volume

The majority of air cannons in the cement industry are 70L air cannons. When a 70L air cannon is unable to provide sufficient cleaning power, suppliers often recommend upgrading to a 150L cannon.

Why do they not make the same recommendation (up to 300L) when a 150L air cannon is unable to provide sufficient cleaning power? The plant in Indiana had many 150L air cannons but was unable to eliminate the snowmen from the centre of the cooler.

IGS's laboratory data confirms the positive correlation of volume and power. Air cannons were placed in front of a 66.8kg sled at distances of 12.7mm, 914mm and 1524mm. They were discharged with varying gas volumes, velocities and pressure to see which combinations produced the most power and hence cleaning efficiency.

Table 1 shows test results that compare 70L and 150L air cannons. The IGS Big Blue produced twice as much force, mass, and kinetic energy as the older air cannons. This enabled its cleaning blast to penetrate into the centre of the area to knock the top off the snowman. The old air cannons did not have enough power to do so.

Velocity

Most air cannons in the cement industry employ a fan jet nozzle. That nozzle is designed to clean a wide area at the cost of penetration. It cleans 1.0-1.5m into the application, a range that is insufficient for most applications. It will always be insufficient when attempting to reach the middle of the cooler to eliminate snowman build-up.

In contrast, the high velocity nozzle is designed specifically for the cement industry. This nozzle is designed to increase velocity and focus the air blast, both factors that make the nozzle effective at cleaning. The nozzle contracts the outlet, which generates a blast that has more velocity. The result is twice as much velocity as the fan jet nozzle. The effects of changing the nozzle can be seen in Table 1.

Protecting the Air Cannons

One of the unique challenges facing the plant in Indiana was the need to protect its air cannons. This was because the cooler was a negative pressure unit with extremely high temperatures and corrosive material. If the material reached the internals of the air cannon, it would mean certain failure.



Left: IGS 300L air cannons with high velocity nozzles have entirely eliminated delays due to snowmen at a cement plant in Indiana, US.

IGS protected the installation by installing safety cylinders on all of the air cannons. The IGS Safety Cylinder automatically opens and closes between each air cannon blast. This action prevents heat or debris from entering the reservoir tank, extends its life, and reduces maintenance. The regular movement of the cylinder also prevents it from becoming stuck, which is a common issue with manual safety shields.

The results

The plant in Indiana eliminated their build-up problems. Although the adjustment to the chemistry alleviated the build-up problem, the plant operator attributes much of the success to the upgraded air cannons. The added volume and velocity enabled the cleaning blast to reach the middle of the area where the snowmen formed. Furthermore, the IGS safety cylinder protected the installation by preventing the harsh environment from reaching the air cannon's internal. The plant is free from snowman build-up and the need to employ supplemental cleaning methods.

Conclusion

Many believe the myth that peak force is the most important variable of air cannons cleaning. That is why a 70L air cannon is often equipped with a fan jet nozzle. Although it generates a high peak force, it is a weak, ineffective recommendation.

IGS' solution for the plant in Indiana focused on three areas: volume, velocity, and protection. By increasing the size of the reservoir tank and changing the nozzle, IGS ensured that the air cannon had enough power to clean the snowmen in the middle of the cooler. By fitting each air cannon with a safety cylinder, IGS ensured each air cannon would be protected from the corrosive environment of the cooler. When these three factors are successfully applied, the difference in cleaning is staggering.





India: UltraTech Cement beats climate goal

UltraTech Cement says it has beaten its goal of doubling its energy productivity ahead of its deadline. It joined the EP100 initiative in 2018 and agreed to double its energy productivity from the base year of 2010 with the target year of 2035. It has now achieved this by investing in energy efficiency measures such as upgrading clinker coolers, implementing variable frequency drives to manage electricity flow and introducing new waste heat recovery systems. The company says it is focusing on new technologies, changes in product and energy mix, digitisation and carbon pricing. It foresees the digitisation of its energy performance as a key enabler to identify the best opportunities to save energy.

"UltraTech firmly believes that companies in the building material sector can come together to step up climate action for meeting the global 1.5-degree ambition," said Kailash Jhanwar, managing director of UltraTech Cement. "Joining like-minded companies in EP100 gave us an opportunity to accelerate and scale-up levers to double energy productivity and also drive the decarbonisation agenda."



Vietnam: Production rises over first 11 months despite pandemic

The General Statistics Office (GSO) estimates that Vietnam produced a total of 90Mt of cement in the first 11 months of 2020 of 90.0Mt, a rise of 3.4% year-on-year from 87.0Mt in the same period of 2019. Production reached 9.1Mt in November 2020, a rise of 4.6% year-on-year from 8.7Mt a year earlier. Vietnam produced 96.5Mt of cement in 2019, a 7.9% rise compared to 2018.

Vietnam: Plants ordered to close by 2030

The government of Quang Ninh Province has ordered the closure of two cement plants in Ha Long, the 2.0Mt/yr Ha Long cement plant and 2.3Mt/yr Thang Long cement plant, by 2030. The Viet Nam News newspaper has reported that the closures aim to protect the local environment and nature as part of the city's move towards becoming a tourism and service hub centred on Cua Luc Bay. In 2014 the provincial government advised the cement plants to stop expanding and relocate before 2030.

China: President of CNBM Engineering resigns

Xia Zhiyun has resigned as the president of China National Materials International Engineering (CNBM Engineering). However, he will remain a director of the company, a member of the strategy and investment committee of the board of directors and a member of the nomination committee. The company is part of CNBM Group. It provides engineering services and equipment to the international cement, housing, industrial equipment and light industry sectors.

Iran: Production rises 14% in six months

Cement production in Iran rose by 14.4% year-on-year to 35.6Mt in the first half of the current Iranian calendar year, which began on 21 March 2020. It was 31.1Mt in the same period of the previous calendar year.

The sector exported 5.8Mt of cement with a value of US\$128m during the six months to 21 September 2020. Local press reported that 28 countries received Iranian cement, with India, Afghanistan, Russia, Iraq, Qatar, Kenya, Kuwait, Sri Lanka, Pakistan, Armenia, Turkmenistan, Kazakhstan, Azerbaijan, Bangladesh, China and Oman among the destinations.



Taiwan: Revenue falls for Taiwan Cement

Taiwan Cement's revenue came to US\$2.88bn in the first nine months of 2020, a year-on-year decrease of 6%. However, its operating income was US\$800m, a 9% year-on-year increase compared to the first nine months of 2019. Its net income was US\$640m, 4% higher than a year earlier.

"The fourth quarter is the traditional peak season for the cement market and we remain optimistic about our performance," said Edward Huang, Senior Vice President and Spokesperson of Taiwan Cement.



Sri Lanka: Tokyo Cement to increase production

Tokyo Cement Company (Lanka) has announced that it expects to sign an agreement to increase the production of OPC and other hydraulic cement products by 1Mt/yr. The investment will be made at its existing cement grinding plant in Trincomalee on the north east coast of Sri Lanka.

Tokyo Cement said that the project would cost approximately US\$12m. *Global Cement* notes that this amount is fairly low for such a large increase in cement capacity and therefore may represent increases in cement handling capacity, rather than grinding capacity. Tokyo Cement said that it expects the project to be completed within 24 months.

Indonesia: Semen Indonesia signs rail MoU

Semen Indonesia has signed a memorandum of understanding (MoU) with rail freight company Kereta Api Indonesia (KAI). The MoU covers a planned increase in cooperation on rail-based transportation and medium and long-term land leases, the conduct of joint studies into railways and infrastructure and the development of other forms of potential cooperation.

Japan: Sumitomo Osaka announces climate goals

Sumitomo Osaka Cement has formulated a set of medium-term goals and long-term policies in order to enable it to achieve carbon neutrality, in line with the Japanese government's target, by 2050. These consist of a 30% reduction in energy-derived carbon dioxide (CO₂) emissions intensity between 2005 and 2030 and efforts toward carbon neutrality in energy and process-derived emissions by 2050. These efforts include: reduction to the limit of fossil energy, development and introduction of process-derived CO₂ emission reduction technology, carbon-free electric power, technology development and supply expansion related to low-carbon cement and concrete products, development and supply of innovative bonding materials and development and introduction of innovative technology related to carbon capture, utilisation and storage.

Pakistan: APCMA's offices searched in Karachi

The Competition Commission of Pakistan (CCP) conducted a search and inspection of the Karachi offices of the All Pakistan Manufacturers Association (APCMA) on Thursday 19 November 2020. The search was carried out as part of an enquiry launched in May 2020 to investigate possible anti-competitive activities by cement producers. Two different CCP teams entered and searched the offices of the Chairman and Vice Chairman of APCMA and impounded relevant records.



The enquiry began based on the information gathered through various media reports and concerns expressed regarding a concurrent increase in cement prices across Pakistan, particularly during April 2020. The APCMA stands accused of orchestrating a price rise among producers.

The CCP previously searched and inspected the APCMA's main offices in Lahore. That search allegedly led to the discovery of WhatsApp messages and emails that led investigators to believe there were grounds for further investigation.



China: Bauma China 2020 welcomes 80,000 visitors

The Bauma China 2020 trade fair took place from 24-27 November 2020 in Shanghai, attracting 2867 exhibitors and a total of 80,000 trade visitors from China. The organisers said that, despite the Covid-19 pandemic, the exhibition was able to take place across a 300,000m² area, thanks to a 'sophisticated safety and hygiene concept.' It said, "In these difficult times, Bauma China 2020 gave the entire industry a reason to enter the coming fiscal year with confidence and hope."



Thailand: Siam City to digitise procurement processes

Siam City Cement has signed a new contract with US-based SAP Ariba for the further digitisation of its end-to-end procurement processes by using the latter's software products. The producer first partnered with the company for sourcing, contracts, catalogues, supplier information management and supplier collaboration in 2016. Following the latest release in August 2020, SAP Ariba's products support the Thai language, making it easier for buyers and suppliers to communicate and transact over Ariba Network.



Pakistan: Three Wärtsilä engines for expanded Pezu plant

Lucky Cement has placed an order for three 10MW 34DF dual-fuel engines for its Pezu cement plant in Khyber Pakhtunkhwa from Finland-based Wärtsilä. The engines are capable of using various fuels but will be fuelled primarily by natural gas. They have been ordered to provide additional power for the unit's captive power plant due to an increase in cement production capacity. The orders were placed in April, August and November 2020.

India: Star to start grinding plant build

The Chief Minister of West Bengal, Mamata Banerjee, says that workers have cleared land in Jalpaiguri District on which Star Cement will establish a 2.0Mt/yr grinding plant. The US\$61m grinding plant will receive its clinker from the company's Lumshnong cement plant in Meghalaya.

CEO Sanjay Kumar Gupta said that the plant, which will bring the company's total installed cement production capacity to 6.0Mt, will serve a state with a domestic cement demand of up to 25Mt/yr.

Philippines: Holcim Philippines to merge subsidiaries

LafargeHolcim subsidiary Holcim Philippines has announced plans to merge with its subsidiaries Bulkem Philippine Incorporated and Mabini Grinding Mill Corporation. A special stockholders' meeting will take place on 15 January 2021 to finalise the transactions.

Bulkem Philippine Incorporated leases the Iloilo cement terminal in Western Visayas, while Mabini Grinding Mill Corporation leases the Mabini grinding plant in Calabarzon.



Pakistan: Pioneer increases captive coal capacity

Pioneer Cement has begun to generate power from its upgraded 24MW coal-fired power plant. The plant previously had a power generation capacity of 12MW.

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Interview by Peter Edwards, Global Cement Magazine

Plant report: BIGBOSS Cement, Philippines

Global Cement speaks to BIGBOSS Cement's Ishmael Ordóñez about the company's background, its unusual production process and local market conditions, with a focus on its recently-commissioned Gebr. Pfeiffer ready2grind modular grinding system.



Above: Ishmael Ordóñez is Senior Vice President for Administration at BIGBOSS Cement. He joined the company in 2017. He was previously also responsible for operations, including the project to construct the company's plant in Porac. Prior to BIGBOSS Cement, he worked in the beverage and pharmaceutical sectors and, most recently, as Chief Administration Officer for International Care Ministries, a non-governmental organisation that cares for the poorest in Filipino society.

Global Cement (GC): Please could you introduce BIGBOSS Cement?

Ishmael Ordóñez (IO): BIGBOSS Cement is a 100% Filipino-owned producer of cementitious materials that was established in 2017. It was named after the ultimate Big Boss, God Almighty, and is dedicated to carrying out the work of Jesus Christ on Earth. The major shareholder is Henry Sy Jr.

GC: Can you expand on the founding and development of the company?

IO: Henry Sy Jr. is co-vice chairman of SM Investments, a major conglomerate in the Philippines. He also serves as chairman of SM Prime, the group's property arm, which has interests in malls, residences, offices, hotels and convention centres. Due to the continued strong demand for such facilities in the Philippines, he decided to develop captive cement production capacity. BIGBOSS Cement is the result of that dream.

The plant itself is located in Porac, in Pampanga, Luzon. It is around 100km north of Manila, the capital of the Philippines, in the north of the country. It uses an unusual production process that makes use of a volcanic material, lahar, which resulted from a major eruption of the nearby Mount Pinatubo in 1991. The lahar is a very siliceous material that is found at the surface in a 25m-thick layer. It extends for many square kilometres in the area surrounding the plant. The lahar is the primary ingredient for BIGBOSS' cement. It is mainly SiO_2 and, if you analyse it using X-ray diffraction (XRD) it bears a strong resemblance to cement clinker. However, as it lies in the ground, the lahar is not activated. This is why our President and key innovator, Eng. Gilbert Cruz, developed a patent-pending process that activates this material, turning it cementitious.

GC: How does the BIGBOSS process differ from conventional cement production?

Right: The crater lake at the top of Mount Pinatubo. The volcano, which erupted in 1991, is a source of lahar, the main raw material used by BIGBOSS Cement.





Left: Construction of the ready2grind mill at the BIGBOSS Cement plant in Porac in mid November 2020.

IO: You can think of the BIGBOSS Cement plant as being somewhere between a conventional integrated facility and a grinding plant. This is because there is a low-temperature heating step. In this patent-pending process, the lahar is heated to above 200°C in a diesel-fired chamber. This activates the material, converting it to what we term Granulated Activated Sand by Heating (G ASH).

The G ASH, plus some imported clinker, gypsum, limestone and slag, are then ground in our three mills. There are two ball mills from a Chinese

supplier. These have a shared capacity of 110t/hr and came online in 2018 and 2019 respectively. The third is a 70t/hr modular ready2grind vertical roller mill from Gebr. Pfeiffer, which was commissioned in December 2020. These three mills combine to produce around 4320t/day (1.4Mt/yr) of low-clinker cement.

GC: How do you distribute these products?



Left: Map of the Philippines, with Manila, Batangas and BIGBOSS Cement plant shown. Pampanga Province is highlighted.

Far left: Lahar mud flow in the immediate vicinity of Mount Pinatubo.



Above: The ready2grind system comes largely pre-assembled, resulting in lower installation times.

IO: We have two bagging lines, a Chinese one for the two Chinese mills and a Haver & Boecker line for the ready2grind mill. They pack the products into 40kg bags, which are sold to hardware stores via our sales team and a network of dealers. This is how we have chosen to enter the market. We are helped by the green credentials of our products, which emit around half the CO₂ per tonne as conventional cement products.

With the resources at his disposal, Henry Sy Jr. could have simply bought another cement producer. There have been plenty of opportunities to do so in the Philippines recently. However, he was looking to enter a niche, while also doing some good. Indeed, our company motto is 'Green is Good.' The less clinker the better.

GC: Why did BIGBOSS decide to change supplier for the third mill?

IO: When we decided to expand the plant, we also wanted to 'level up.' Gebr. Pfeiffer is a long-standing company in the cement mill business, with an incredible history and reference list. It dealt with us directly, not via a third party and shared our enthusiasm to develop the Philippines.

The ready2grind modular mill concept was chosen due to its short construction time. We had estimated that the new mill would be commissioned within eight months of the start of civil works, but restrictions surrounding the Covid-19 pandemic ultimately extended this to around 12 months.

GC: How did the project unfold?

IO: The contract was signed in mid 2019 and civil works started in early 2020. The machinery was installed in mid 2020 and cold commissioning began in October 2020. Hot commissioning took place in late November 2020 and the ready2grind mill was fully up and running in early December 2020.

As I mentioned, there were some delays due to the pandemic. However, we were still able to receive parts during the spring and summer as the government classified projects such as this as 'essential.'

GC: Were there any issues during commissioning and how were they overcome?

IO: The inability for Gebr. Pfeiffer's experts to travel between Europe and the Philippines was a major reason for the delays I mentioned in my answer above. BIGBOSS and its local partners had to undertake parts of the project with Gebr. Pfeiffer assisting from a distance. Online meetings have been a big help in this regard. A lot of pictures were sent back and forth to Germany.

In late November 2020, Gebr. Pfeiffer's team were finally able to travel to the Philippines to assist with final commissioning and start-up. We are grateful for a fruitful collaboration and were able to keep going with the project during a difficult period.

GC: What are the differences between grinding G ASH with a ball mill compared to a vertical roller mill?

IO: We grind our products to a fineness of around 4200cm²/g according to Blaine. However, the G ASH is easier to grind than clinker. In a ball mill this means that the different components have a tendency to separate as they progress through the mill.

However, due to the nature of a vertical roller mill, this effect is significantly diminished. We worked closely with Gebr. Pfeiffer to ensure that we developed a mill that was capable of 70t/hr.

GC: What's next for BIGBOSS Cement?

IO: BIGBOSS has plans to enter the bulk distribution market, either via packing in Big Bags or via bulk road tankers. The silos and systems are in place, as this has always been part of our long-term plan. However, to enter the bulk sector, we need to optimise our formulation to achieve a higher compressive strength. The bagged formulations currently reach 24-28MPa after 28 days. To be used in bulk projects, we need to achieve more than 40MPa. It is something we are working on right now.

We are also thinking about the next plant(s). Manila is a good source of customers and so we are looking to cover the market to the south, around Batangas. We are also looking at locations for plants further north in Luzon. We will very strongly consider Gebr. Pfeiffer as a supplier for these plants. Beyond this, we have longer-term plans to build plants in the Visayas and Mindanao regions, in central and southern Philippines respectively.

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Right: BIGBOSS Cement commissioned its two Chinese-made ball mills in 2018 and 2019.



GC: Would these plants also be based on the G ASH process?

IO: We would again intend to use volcanic residues as the main raw material at any future plant. These are available in many locations within the Philippines due to the high levels of volcanic activity.

GC: Is the Philippines still *Build Build Building*?

IO: The government's *Build Build Build* programme was hampered by the Covid-19 pandemic in 2020. However, there is a strong underlying drive for major new roads and infrastructure projects, housing developments and so on, with some improvement in the market since September 2020. This is thanks to the adoption of new working protocols, which have enabled a return to some kind of normality. Construction workers are now tested for Covid-19 and wear PPE on site, for example.

GC: How have sales changed since the plant was established?

IO: The plant only began to sell products at the end of 2018, so there has only been one full 'normal' year in the history of the company - 2019. Obviously, construction work was limited at points during 2020 due to limits on the number of workers allowed on worksites.

GC: How was production at the plant affected?

IO: Parts of 2020 were very difficult. We were forced to close the plant for a period in March and April due to a government mandate. However, we successfully put forward a case to grind our remaining clinker stocks, which otherwise would have spoiled. This was done using a skeleton staff.

We also had to lockdown the plant. During this period, the plant was in operation but nobody could enter or leave. Of our 200 staff, 100 were on site and 100 were off site. We provided necessary provisions, accommodation and a hardship allowance to those

on site and a retention allowance to those not able to work. The corporate team was able to work from home in most cases, with the occasional visit to our head office in Manila.

GC: What are the biggest future challenges for BIGBOSS Cement?

IO: We are somewhat reliant on imported raw material costs, particularly clinker. It is possible that these could rise in the future. That said, we could adapt our blend to use no clinker. The resulting product would be able to meet the same strength as we do at present. However, it would not be classified as a commonly recognised cement blend, which might represent a commercial downside. As the user of a captive bunker-fuel-fired power plant, we are also exposed to changes in international prices.

Imported cement, mainly from China and Vietnam, is also a threat to some extent. The market needs this imported material at present, and so as long as the government maintains appropriate import tariffs, importers will continue to complement, rather than threaten domestic producers.

GC: What is the biggest opportunity for the company?

IO: BIGBOSS Cement has huge potential to expand to other areas of the country. On top of the government's *Build Build Build* programme, there is rising cement demand from the 105 million people that call the Philippines home. Small housing projects, schools, hospitals and commercial spaces are all required, which will benefit all cement producers. As a young and green producer of cementitious products, BIGBOSS Cement is well positioned to leverage existing trends to expand rapidly in the coming years.

GC: Thank you. We look forward to following BIGBOSS Cement as it grows.

IO: You are very welcome indeed.



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SK Jain, Unit head, JK White Cement Works, Gotan

Installation of roof-top solar panels at JK White Cement's Gotan plant

JK White Cement reports on the installation of two photovoltaic solar installations at its cement works in Gotan, Rajasthan, India.

The JK White Cement Works in Gotan is the first White Cement manufacturing factory in India to have manufactured white cement using dry process technology. It was originally commissioned in 1984 with an initial production capacity of 50,000t/yr. It uses technology from FLSmidth, which includes its kiln, state-of-the-art continuous on-line quality monitoring and control by X-Ray analysis and PLC systems, which ensure the purest white cement.

Over the years, continuous process improvements and modifications have increased the plant's production capacity to 610,000t/yr, now at its lowest-ever energy levels.

Solar power in India

The world's population is expected to grow to about 10 billion in year 2050. In order to provide the growing population with rising living standards, further economic development is essential, which, in turn, will require more energy than we use today. This energy should ideally be generated from renewable sources so as to be environmentally friendly. Solar radiation can be used via the accumulation of heat in solar collectors or via direct conversion into electricity by photovoltaic (PV) panels.

The government of India has implemented the National Action Plan on Climate Change, with a focus on promoting renewable energy. It comprises eight national missions that represent multi-pronged, long-term and integrated strategies to achieve key climate goals. Solar energy is a major priority among these, with a government target to increase solar energy generation to 100GW by 2022. To contribute to the national target, JK White Cement works has installed two roof-top PV power generation systems.

Case Study 1 - 150kW solar power system on new administration building

JK White Cement has installed a 150kW solar power system on its new administration building. It consists of three inverters and 462 PV panels. The peak power rating of each panel is 325W. Each inverter is connected to panels that share a peak power capacity of approximately 50kW. This is achieved via using eight strings in parallel i.e.: six strings of 19 PV panels and two strings of 20 PV panels in series. The PV panels convert solar energy into direct current (DC) electrical energy and the inverters convert it to alternating current (AC). Each of the inverters has a local display and the facility to communicate with devices via Wi-Fi, Ethernet or a mobile app.

The 415V output supplies of the three inverters are connected in parallel and synchronised with Rajasthan State Electricity Board's grid supply at the motor control centre (MCC) feeder of the plant's new administration building. An energy meter is installed at an MCC feeder to measure the power generated and monitor trends.

Initial studies to assess the suitability of the roof of the new administration building were conducted in June 2018, prior



Right: The final touches are added to the PV panels on the top of the administration building.



to the development of civil drawings of the roof to assess the solar capacity of the available areas in July 2018. The solar PV installation matrix was decided upon in August 2018 and technical specifications were locked in during September 2018. Techno-commercial offers were finalised in October 2018. Installation took place during January 2019, with testing and synchronisation with the grid taking place in February 2019.

After complete installation, the project team checked the currents and voltages of each string to confirm that the power generation from all PV panel strings was uniform. To enable monitoring of the system, the connectivity of all inverters was checked using the mobile app and the solar system was hooked-up to the plant's energy monitoring system.

The installation of solar PV panels on the new administration building was a significant challenge. The anchoring could not have been done on the roof itself, as this would have resulted in water ingress. There were also large gaps between the construction beams, making it a challenge to distribute the load of the PV panels uniformly throughout the terrace.

To do this, small beams were installed on the roof, perpendicular to the existing beams. These small beams were anchored only at existing beams. The PV structures were installed on the small beams. A provision was also made to allow water to pass at 2m intervals to avoid water ponding on the roof.

Another issue relates to the location of the plant. It is surrounded by a number of lime kilns, which emit significant dust. This can limit power generation. The PV panels are therefore cleaned regularly with the help of special water nozzles and wipers to minimise water consumption.

Case study 2 - 100kW solar power system on a club mess building

JK White Cement subsequently installed a 100kW solar power system on its club mess building comprising two inverters and 300 PV panels. The peak power rating of each PV panel is 335W. Each inverter is connected to nine strings of PV panels i.e.: six strings of 17 PV panels and three strings of 16 PV panels in series.

The project began in July 2019 with feasibility studies. It was synchronised to the Rajasthan State Electricity Board in February 2020. As with the prior project, it was necessary to add perpendicular beams to support the panels on the building. The location of the panels also required some air-conditioning units to be moved to another location.

Benefits from above two installations

The total cost of the installation on the new administration building was US\$90,000, including material supply, panels mounting structures, PV panels, civil construction, meter installation and synchronisation with the Rajasthan State Electricity Board.



Above: The project team on the roof of the administration building. Left to right: OP Gurjar, Diwakar Bishnoi and Rahul Dwivedi.

During the 2019-2020 financial year (ending 31 March 2020), the cost saved thanks to solar power generation was approximately US\$21,000. This gives a payback period of four years and four months. A total of 210,990kWh of power did not have to be taken from the grid, reducing CO₂ emissions by 173t/yr.

The total expenditure on the club mess installation was US\$54,000. The cost saved via the generation of solar power is estimated to be around US\$15,500, indicating a payback period of 3.9 years. The power generated in March 2020 was 14,068kWh. Extrapolated over 12 months, this leads to a 115t/yr reduction in CO₂ emissions. Both installations reduce India's dependence on imported energy and have low maintenance costs, while contributing to the aims of the government's National Action Plan on Climate Change.



Below: PV panels on the roof of the club mess building.





Haver & Boecker

Innovative Engineering: The fastest ever installation of a packaging line

Cockburn Cement, an Adbri Ltd company, is a leading supplier of cement products to Western Australia's mining, agriculture and construction industries. In 2017, the company awarded its tender for a new packing line to global technology developer HAVER & BOECKER. While the choice of technology may have been easy, the installation was not without its challenges. Powered by innovative thinking and engineering expertise, the partnership overcame all constraints to execute one of the fastest ever installs of a high capacity HAVER & BOECKER packing line without any supply interruption.

Cockburn Cement's Kwinana packing plant is one of seven Cockburn Cement manufacturing and distribution facilities located in Western Australia. When the plant's grey product packing machine and associated palletiser were approaching the end of their useful life in 2017, the company began a competitive tender process to upgrade its equipment.

Having previously experienced the quality and performance of HAVER & BOECKER equipment, the company selected a 14 spout ROTO-PACKER® RVT14 - the latest in high capacity packing technology - to replace the incumbent technology. The RVT14 is

capable of quickly changing from one product to another requiring only 15 minutes of downtime, significantly faster than the older machines.

Dinesh Kapadia, Engineering Project Manager, Cement and Lime at Adbri Ltd, said "With HAVER & BOECKER's technology, we were confident we could meet our objective of producing 4800bags/hr. It also gave us the opportunity to continue with a standardised technology for ease of operation and maintenance as well as spare parts inventory." The RVT14 also requires less maintenance, creates less waste and produces cleaner bags than the previous machines.

Innovation in installation

Spatial limitations within the plant meant the RVT14 would need to be installed in the same location as the existing packer and palletiser. With ongoing demand from key customers, the removal of the existing packing equipment and the installation of the new system had to be completed without interrupting market supply. This presented some challenging installation constraints.

While stock was built up and the rest of the plant remained operational, the timeframe to stop the old packing line, decommission the old machine and commission the new one was still very tight.

"A conventional build methodology would have required a considerable amount of time, estimated at three months," explains Kapadia. "It would have also meant considerable additional cost through stock building and off-site storage of material."

However, with some innovative thinking, the Cockburn Cement team proposed an alternative solution. "We used the high quality detailed drawings provided by HAVER & BOECKER to develop a modular design," explains James Keys, Project Manager, Cockburn Cement. "Prior to installation, the packing system would be assembled in four

Below: Cockburn Cement and HAVER & BOECKER took an innovative approach to the installation of the Kwinana plant's new bagging and palletising line.





modules outside the packing area in a space 300m from the plant.”

Adding value

According to Adam Scata, Operations Manager at Cockburn Cement, “The modular install had its risks but Cockburn Cement, together with HAVER & BOECKER, managed them well. They provided excellent support to our team as the innovative modular design concept was developed.”

This included the packing machine layout which, designed in close consultation with the Cockburn Cement project team, ensured the footprint of the machine was the best achievable fit within the packing shed.

“The HAVER & BOECKER technicians also supported the incorporation of the blend back system to recycle all flush and waste material. This eliminated any waste going to landfill, offering both cost savings and sustainability gains,” explains Scata.

Further efficiencies were realised by implementing a double pallet stacker to increase throughput. A pallet scanning system was also installed to improve quality control and health, safety and environment factors by ensuring stable stacks in warehousing.

Rapid high-capacity installation

Once assembled and ready for installation, the modules were transported by self-propelled modular transporters from the assembly area to the installation site. Demolition of the existing machines was carried out in 48hr to provide a clean floor for installation of the new machine by crane.

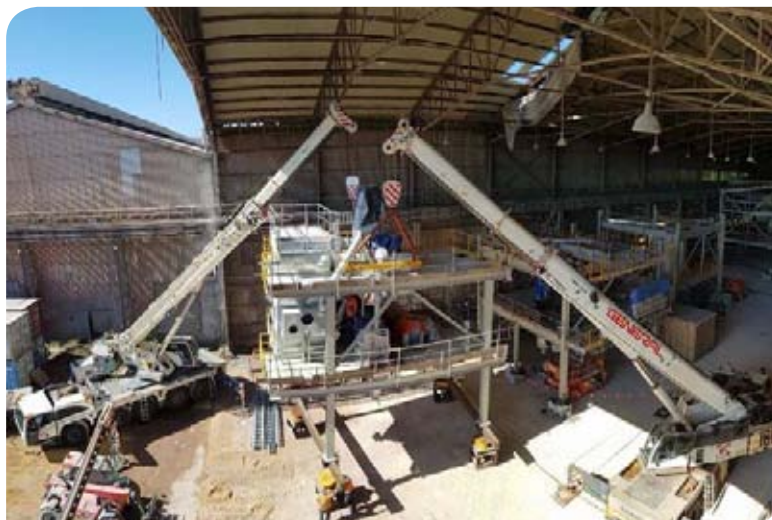
At any one time, HAVER & BOECKER had up to three technicians onsite to supervise. “The Cockburn Cement team developed a great working relationship with the HAVER & BOECKER team, from the managing directors, through to the on-site installation personnel,” adds Scata.

From powering off the old machine to commencing the wet commissioning of the new equipment was just 42 days – the fastest ever install of a high capacity HAVER & BOECKER packing line.

Commercial outcomes

The new bagging plant is nominally rated at 4800bags/hr for general purpose cement and delivers substantial efficiency, reliability and productivity benefits. The higher throughput means Cockburn Cement can now meet market demand through a single eight-hour shift operation, whereas previously two shifts were required.

This reduced operational time allows maintenance functions to be carried out during business hours and it has seen a reduction of product waste through the recycling of spillage and flush material. The cleaner bags and improved product presentation has also led to greater customer satisfaction. 🌐



Above: Assembly of the four modules took place 300m from the installation site.



Left: Installation of the modules at the final location.

Below: The new packing line was in operation just 42 days after the previous line was demolished.




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Oman: Long-awaited Duqm plant breaks ground

Raysut Cement has held the groundbreaking ceremony for its new 1.0Mt/yr Duqm grinding plant. The project will cost US\$30m. CEO Joey Ghose said that the plant would “Contribute significantly to our ambitious capacity expansion targets of 10Mt/yr by 2022, which is expected to be further scaled up to 22Mt/yr in the near future. Secondly, it will help us generate more employment opportunities, aiding our efforts to enhance social and economic progress in Oman.”

The company acquired the lease to the site in the Port of Duqm in September 2019 as part of an on-going series of ‘calibrated’ investments in ‘locations where demand is high and locally-available additives are in close proximity.’

Ghose added, “Our aim is to develop Raysut Cement into a global leader in cement manufacturing, supply and exports. The development of Duqm is an important element in this strategy. Our expansions are dovetailed to the opportunities that exist and are upcoming in the markets we focus on, for instance in East Africa - a booming market for the next 50 years.”



Image: Port of Duqm, Oman, during construction.

Qatar: Strong September 2020 sales

Qatar witnessed robust month-on-month cement production growth during September 2020 as the country scaled back its Covid-19 restrictions. Cement production increased by 9.1%. Cement was one of a number of sectors to buck a wider trend of a continued industrial slow-down, according to the Planning and Statistics Authority (PSA). However, the volume of cement produced was 3.1% lower than in September 2019.

Tanzania: New Tanga plant talks progress

Tanga Cement says that talks with the government about a new 0.5-0.75Mt/yr grinding plant in Arusha are progressing. Discussions about the project with the authorities originally began in 2016. At present the cement company transports cement to the region using a freight train that was inaugurated in 2020.

Cameroon: Dangote notes strong position

Dangote Cement’s subsidiary in Cameroon estimates that it had a market share of 39% in the first nine months of 2020. It reckons the total cement market in the country was over 2.6Mt in the same period and that it sold around 1Mt.

Dangote said that the market was mainly driven by individual construction projects and public housing estates. In February 2020 the subsidiary said it planned to ‘do better business’ in 2020 by focusing on the construction sites of stadia, roads, hotels and other construction projects in preparation for the 2021 Africa Cup of Nations football tournament, which has now been postponed to 2022 due to the Covid-19 pandemic.



Above: The Khalifa International Stadium in Doha, Qatar, will play an important role in the 2022 FIFA World Cup. Both Qatar and Cameroon will host major tournaments next year. Credit: Fitria Ramli / Shutterstock.com

Mozambique: Sino Energy signs MoU regarding plant purchase

Sino Energy, a manufacturer and supplier of footwear and related accessories across mainland China, has agreed in principle to purchase a 65% stake in the 0.4Mt/yr cement plant located in Northern Pemba City, Cabo Delgado Province. The plant was built in 2016 but has suffered due to low demand.

Sino Energy signed a non-legally-binding Memorandum of Understanding (MoU) with Sino-Harbor Construction Group (Hong Kong) on 23 November 2020. The MoU gives Sino Energy until April 2021 to carry out due diligence and conduct further negotiations.



Zimbabwe: Strong third quarter for Lafarge

LafargeHolcim subsidiary Lafarge Cement Zimbabwe has said that cement demand has increased by 34% quarter-on-quarter in the third quarter of 2020 following the end of the national coronavirus lockdown. The company said that cement demand in July 2020 was the highest in that month since July 2003 due to a 7% year-on-year sales rise.

Company chair Kumbirai Katsande said "As business activity progressively continued to gain momentum into the third quarter of 2020, the demand for cement consequently outstripped supply, causing a considerable supply backlog." Katsande said that the shortage will ease as demand decreases in line with higher rainfall in the fourth quarter of 2020.



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Nigeria: Dangote reports impressive nine month results in 2020

Dangote Cement reported group sales of US\$2.0bn for the first nine months of 2020, up by 12% year-on-year from US\$1.79bn in the first nine months of 2019. Its cement volumes rose by 7% to 19.2Mt from 18.0Mt, while its earnings before interest, taxation, depreciation and amortisation (EBITDA) rose by 17% to US\$934m from US\$797m.

Dangote Cement CEO Michel Puchercos said, "Dangote Cement's strategy to offer high quality products at competitive prices is meeting customers' expectations in Nigeria and across the continent, where we continue to deploy excellent marketing initiatives and operational excellence. We remain committed to protecting our staff and communities by being fully compliant with health and safety measures in all our territories of operation. We are focused on adapting to the rapidly-evolving markets in which we operate." The group added that the third quarter of 2020 was its strongest third quarter to date.

The company also said "Our vision is for West and Central Africa to become cement and clinker independent, with Nigeria being the main export hub. This will notably contribute to the improvement of regional trade within the Economic Community of West African States region and beyond with the African Continental Free Trade Area."





Algeria: GICA exports clinker to Hispaniola

Groupe des Ciments d'Algérie (GICA) has completed the export of 41,000t of clinker to Haiti and the Dominican Republic. Algeria Press Service has reported that the company exported the clinker, produced at the Hadjar Soud cement plant, from the Port of Annaba.

GICA CEO Youcef Merabet said, "The Hadjar Soud cement plant, which operates two production lines totalling 0.9Mt/yr of cement production capacity, will promote its exports in 2021."



Image: The Egyptian Tourah Portland cement plant.
Source: Company website.

Egypt: Stake shuffle at Egyptian Tourah Portland

Metallurgical Industries Holding sold its 18% stake in Egyptian Tourah Portland Cement for just under US\$3m in December 2020. Arab African International Securities (AAIS) acted as broker for the transaction. In October 2019, the Financial Regulatory Authority (FRA) approved HeidelbergCement subsidiary Suez Cement's mandatory tender offer (MTO) for 100% acquisition of Egyptian Tourah Portland Cement for around US\$33m. The company's 1.0Mt/yr cement plant is Egypt's oldest, established in 1927.

Nigeria: Borders reopen for cement exports

Dangote Cement and BUA Cement have been allowed to export goods by land following a closure of land borders in mid 2019 due to smuggling. The government has granted permission for Dangote Cement to export its products to Niger and Togo, according to the Business Live newspaper. BUA Group has also received approval. However, Lafarge Africa has reportedly not yet received permission.



Kenya: EAPCC disputes with staff and neighbours

East African Portland Cement Company (EAPCC) has threatened 'recovery proceedings' in relation to the alleged unlawful extraction of building materials on its land in Mavoko County by China Road and Bridges Corporation (CRBC). EAPCC says that it has twice contacted the construction company, which is engaged in building the Nairobi Expressway toll road, to order it to desist. The cement producer is seeking a buyer for the parcels of land, which are also home to illegal squatters.

In November 2020, a union representing 150 of EAPCC employees who it made redundant on 1 September 2020, rejected the company's offer to take back the workers on a three-year contract with a pay cut of 50%.

Nigeria: BUA Cement improves access to power

BUA Cement has donated six transformer units with a total capacity of 400kW to Okpella Community in Edo State. The Daily Independent newspaper has reported that the company's aim is to improve local access to electricity.

Managing director and chief executive officer (CEO) Yusuf Binji said, "Our commitment to sustainability, sustainable development goals and sustainable business practices will remain critical to our business at BUA Cement. We will keep pursuing an inclusive, safe, resilient, and sustainable environment. Corporate social responsibility is how we colour the lives of those around us."





These pages give *Global Cement Magazine's* monthly review of global cement prices - in US\$ for easy comparison. Some price information is only available to subscribers to *Global Cement Magazine*. Subscribe on Page 64. In this issue subscribers receive information from: China, Nigeria, Pakistan, Tanzania and Uzbekistan.

Prices are for metric tonnes unless otherwise stated. US\$ conversions from local currencies are correct at the time of original publication.

Egypt: Ordinary Portland Cement prices as at 7 December 2020: Arabian Cement Co (Al Mosalah) = US\$50.47/t; Arabian Cement Co (Al Nasr) = US\$47.73/t; Cemex (Al Nasr) = US\$46.97/t; Cemex (Al Fahd) = US\$46.01/t; Minya Portland Cement (Minya) = US\$47.41/t; El Nahda Cement (Al Sakhrhah) = US\$46.33/t; Wadi El Nile Cement = US\$46.78/t; Lafarge (Al Makhsous) = US\$48.37/t; Arish Cement (Alaskary) = US\$46.77/t; Sinai Cement (Sinai) = US\$46.97/t; Suez Cement (Al Suez) = US\$49.00/t; Helwan Cement (Helwan) = US\$49.51/t; Misr Beni Suef = US\$48.37/t; El Sewedy Cement = US\$50.59/t; Misr Cement Qena (Al Masalah) = US\$47.29/t; South Valley Cement (Ganoub Elwady) = US\$46.14/t.

White cement prices as at 7 December 2020: Sinai White Cement (Alabid Elnada) = US\$159.45/t; Sinai White Cement (Super Sinai) = US\$156.90/t; El Menya Cement (Super Royal) = US\$152.43/t; El Menya Cement (Royal Elada) = US\$154.98/t; Menya Helwan Cement (Alwaha Alabiad) = US\$154.67/t.

Blended cement prices as at 7 December 2020: Sinai Cement (Al Nakheel) = US\$41.14/t; El Menya Cement (Al Omran) = US\$39.86/t; Helwan Cement (Al Waha) = US\$42.60/t; El Sewedy Cement (Sewedy Tashtibat) = US\$43.05/t.

Sulphate-resistant cement prices as at 7 December 2020: Arabian Cement Company (Moqwem Mosalah) = US\$51.54/t; Cemex (Al Mukawem) = US\$48.68/t; Minya Portland Cement (Asec Sea Water) = US\$48.87/t; Lafarge (Kaher Al Behar) = US\$51.54/t; Suez Cement (Al Suez Sea Water) = US\$50.78/t; El Sewedy Cement (El Sewedy Al Mukawem) = US\$51.74/t.

EU ETS: CO₂ emissions permits cost Euro29.62/t on 7 December 2020, a 1.6% week-on-week rise from Euro29.14/t on 30 November 2020, a 16.5% rise month-on-month from Euro25.42/t on 6 November 2020 and a 18.8% rise year-on-year from Euro24.94/t on 7 December 2019.

India: Cement prices in southern India grew during the third quarter of 2020. According to Motilal Oswal, prices in the region had been strong and were up by 18% year-on-year in the three months to 30 September 2020, while prices in north, west and central India are up by 7%, 6% and 5%. Quarter-on-quarter prices were unchanged in the south, with rises of 3%, 1% and 2% respectively in the north, west and central regions quarter-on-quarter respectively.

In the fourth quarter of 2020, the average price had risen by 0.8% quarter-on-quarter by early December 2020, bucking the usual trend for this part of the year, which has typically seen quarter-on-quarter declines of 0.7-1.1% in recent years.

Year-on-year the average price across the country had risen by 7% compared to the fourth quarter of 2019, reaching US\$4.88/bag (50kg). This was led by rises of around US\$0.95-1.22/bag (~20%) in April-May 2020, with prices in the south still up by US\$0.81/bag as at early December 2020, an 18% year-on-year rise to US\$5.33/bag.

Motilal Oswal added that prices in Maharashtra had risen by around 10% to US\$4.80/bag. Prices in Gujarat remained steady quarter-on-quarter at US\$4.75/bag. This has taken prices in the West of India up by 1% quarter-on-quarter to US\$4.78/bag. Prices in the north have risen by US\$0.18/bag to US\$5.28/bag, up by around 7% year-on-year. Prices in central India have also risen, by around 5%, to US\$4.83/bag.

Prices in the east of India have fallen by around US\$0.34/bag since May 2020. However, prices are marginally higher year-on-year at US\$4.40/bag.



Do you have your finger on the cement price pulse where you are?
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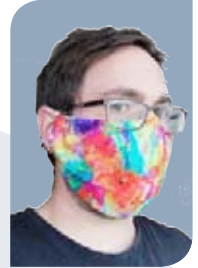
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A return to normal?

Peter Edwards Editor, *Global Cement Magazine* (peter.edwards@propubs.com)



The Covid-19 pandemic upended most people's normal routines around the world in 2020. Many column inches have been devoted to 'the new normal.' What will 'normal' look like in a week, a month, or a year? When government rules change every other week, the question is an ever-shifting goalpost. Comments can age rapidly and make the author look silly, even a few days later.

At the moment 'normal' may, depending on your location, might include a lockdown, home-working, home-schooling, a lack of meaningful socialising, an inability to travel and/or other restrictions. From the 'start' of 2021 it is impossible to say very much about how the year will pan out. One thing is for sure - it will be another rollercoaster, with plenty of 'new normals' to take in along the way.

But what makes something 'normal' anyway? As an adjective in everyday use 'normal' means 'conforming to a standard, usual, typical or expected situation,' whether the topic is behaviour, height, blood pressure or any other facet of the world around us. In mathematics, 'normal' is defined as perpendicular to a tangent line or curve. In statistics the 'normal' distribution describes a probability distribution that is symmetrical around the mean.

We can define 'normal' behaviour in other ways too. One online comment that stuck out to me while I was reading around this topic defined it as *'...the most popular form of weird.'* Peeking beneath this comment's tongue-in-cheek exterior, there is a grain of truth. Everyone deviates from 'normal' behaviour to some extent, but on average we can identify an expected 'mean' behaviour. A normal distribution of normality, if you will.

Of course, 'the most popular form of weird' varies enormously across different cultures and has changed throughout the ages. In the 19th Century it was common to spit in public across much of Europe. In 2021, you might be arrested or fined. In Japan blowing your nose is bad manners, while not doing so in much of rest of the world would be equally unusual. Hand gestures are a total minefield. A thumbs up, often a positive signal or greeting, can mean exactly the opposite in parts of the Middle East. An OK sign might be used by an Italian show their appreciation of a meal or by an American to indicate all is well. In Brazil the same signal is very rude, as Richard Nixon found out during a trip when he was US Vice President in the 1950s.

Different generations also have their own views of what is 'normal.' This is often a conscious decision to deviate from whatever norms have come before, be it the clothes we wear, the music we listen to, our preferred foods or entertainment, even the way we communicate. Previously dominated by 'moody teenagers,' digital communications and social platforms are now, due to Covid-19, part of all of our lives.

So 'normal' varies across different times, places and subsets of the population. This shows that 'normal' *can* change, most often without a grand plan or strategy. So... do we want to change 'normal' and, if so, how? Can we? Should we?

A further look in the comments section underneath a cross-section of news articles indicates that the answer to the above question is often 'Yes.' There is a wide-ranging dissatisfaction with our current (and previous) normalities. A recurring comment is *'Normal is what led to this in the first place,'* where *this* is variously Covid-19, climate change, populism, adversarial politics, childhood obesity, unhealthy work practices and all manner of other modern phenomena.

The clear implication of such comments is that we need to 'do something' about normality, which otherwise will continue to lead us up the wrong path. Indeed, this sentiment now seems to be resonating with national governments, several of which have recently pledged to 'build back better.' This doesn't mean physically re-building towns and cities with cement and concrete, but restructuring how societies work for people and the planet. There is finally a recognition that, rather than green technologies costing money, they provide jobs (and tax receipts). This could offer a powerful economic vaccine against the worst of Covid-19's economic symptoms. Take China, the first country to suffer the effects of Covid-19 and one of the biggest users of coal in history. It has committed to net zero CO₂ emissions by 2060. The EU will cut emissions by 40% by 2030. The early days of the Biden Administration will see the US rejoin the Paris Accord.

In late 2020, major cement producers lined up to pledge to hit stringent emissions targets, many as part of the NYC Climate Week. These companies are redefining the cement sector's 'normal,' shaping our sector for the years ahead. Hopefully many more will add their names in 2021. *Global Cement*, for its part, will continue to emphasise sustainability, whatever 'normality' brings us next.





Advertising enquiries:

Paul Brown: +44 (0) 7767 475 998 / paul.brown@propubs.com

Editorial enquiries:

Peter Edwards: +44 (0) 1372 840 967 / peter.edwards@propubs.com

Jacob Winskell: +44 (0) 1372 840 953 / jacob.winskell@propubs.com

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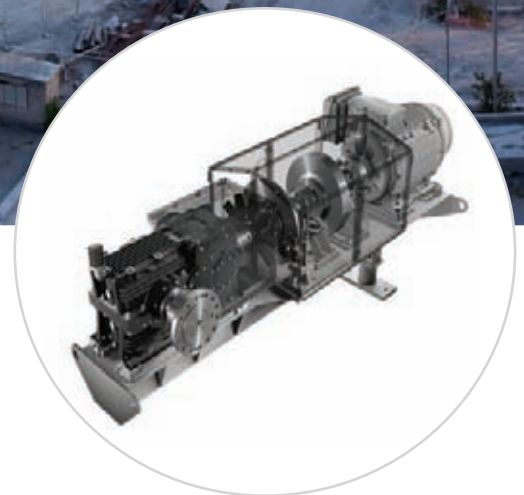
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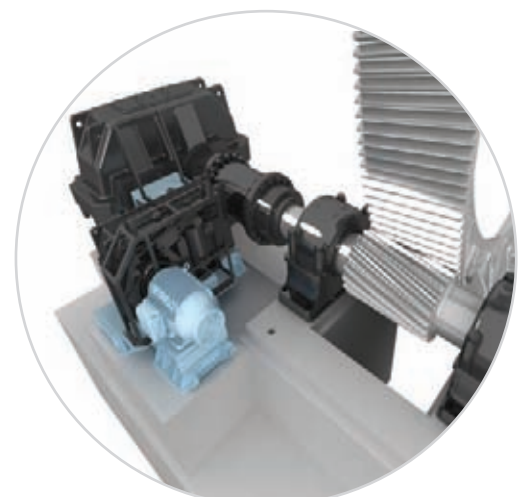
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