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JULY-AUGUST 2016

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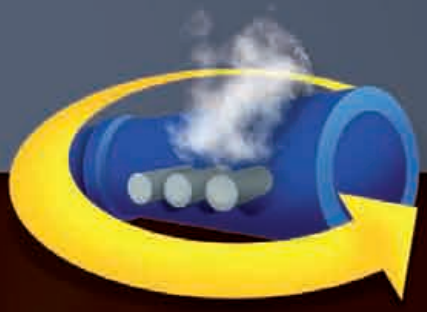

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GLOBAL CEMENT PHOTOGRAPHY COMPETITION 2017

Global Cement Magazine invites entries for the *Global Cement Photography Competition 2017*. The winning photos will be showcased in *Global Cement Magazine* in 2017. The winner of the competition will also receive US$250 as a cash prize and the runners up will receive US$125. Anyone can enter and each individual may enter up to five cement-related photographs. Every entry must be accompanied by a separate MS Word document stating: Photographer's name, company, email and postal address; Location of the subject. Entry is simple and free: Please send your entry to **rob@propubs.com**, with the subject *'Global Cement Photography Competition.'* Files must be above 500kb but must be below 5Mb in compressed size. **DEADLINE:** 16 December 2016.

global cement MAGAZINE

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Dear readers,

With record average global temperatures recorded in the past seven months, the effect that human activity has been having on the world has never been so sharply in focus. While CO_2 emissions are not the only factor 'on the radar,' they are particularly in focus due to the apparent relationship between rising CO_2 levels and rising temperatures. The Paris Agreement, signed by 190 world leaders in April 2016 is a legally-binding agreement to keep emissions within levels that are consistent with a maximum of 2°C warming by 2100, a level below which research by the Intergovernmental Panel on Climate Change (IPCC) suggests we should avoid the worst effects of climate change. Hitting this target will, for the most part, involve action on CO_2.

For conventional cement producers, meeting such targets poses a challenge. There are two points at which the cement process emits CO_2: Burning the fuel to heat the raw meal and the removal of CO_2 from limestone to produce CaO and, ultimately, clinker. While some may dig their heels in and argue that the process (and the wider construction industry) cannot be changed as rapidly as required by the Paris target, an increasing number disagree. They point to the increasingly strong connection between what might formerly have been dismissed as 'green kudos' and financial results, as producers are held to account by increasingly ethical and environmentally-conscious end consumers. There is increasing evidence that the consumers of the future will want to buy the most environmentally-sound cement, giving a huge financial upside to those that act now to reduce their embodied CO_2 emissions.

In this issue, we carry three articles that relate to the above topics. First up, authors from Trucost outline the benefits of cement and construction companies setting '2°C-compatible' emissions targets (Page 8), while Martyn Popham from low-CO_2 cement producer Cenin Cement argues the case for changing cement chemistry, from Page 10 onwards. The third article, from the Carbon Disclosure Project, looks at how well prepared some of the largest cement producers are for CO_2 taxes, limits and future water constraints (Page 12) - Their report finds significant room for improvement.

Elsewhere in this issue, we take a look at the Top 10 cement producers in 2016, their recent news and future outlooks, from Page 16 onwards. We also include articles on bagging, copper slag in cement, cranes, terminals, emissions and mill maintenance.

We hope you enjoy this issue of *Global Cement Magazine* - the world's most widely-read cement magazine!

Peter Edwards
Editor

Cement Industry Suppliers' Forum

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Editorial Director
Dr Robert McCaffrey
rob@propubs.com
(+44) (0) 1372 840951

Editor
Peter Edwards
peter.edwards@propubs.com
(+44) (0) 1372 840967

Web Editor
David Perilli
david.perilli@propubs.com
(+44) (0) 1372 840952

Commercial Director
Paul Brown
paul.brown@propubs.com
Mobile: (+44) (0) 7767 475998

Business Development Executive
Sören Rothfahl
soeren.rothfahl@propubs.com
Mobile: (+44) (0) 7850 669169

Company manager
Sally Hope
sally.hope@propubs.com

Subscriptions
Amanda Crow
amanda.crow@propubs.com

Office administration
Jane Coley
jane.coley@propubs.com

The views expressed in feature articles are those of the named author or authors. For full details on article submission, please see: ***www.GlobalCement.com***

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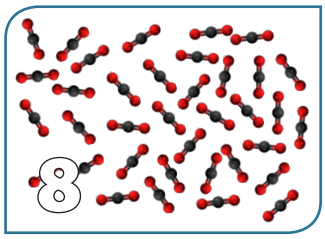
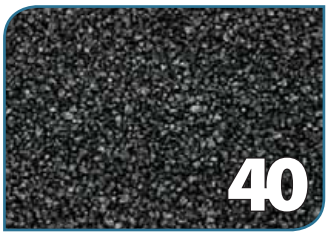
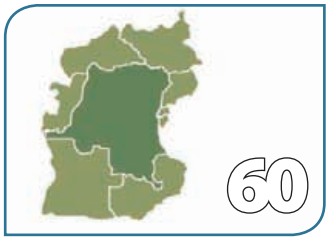


Global Cement articles





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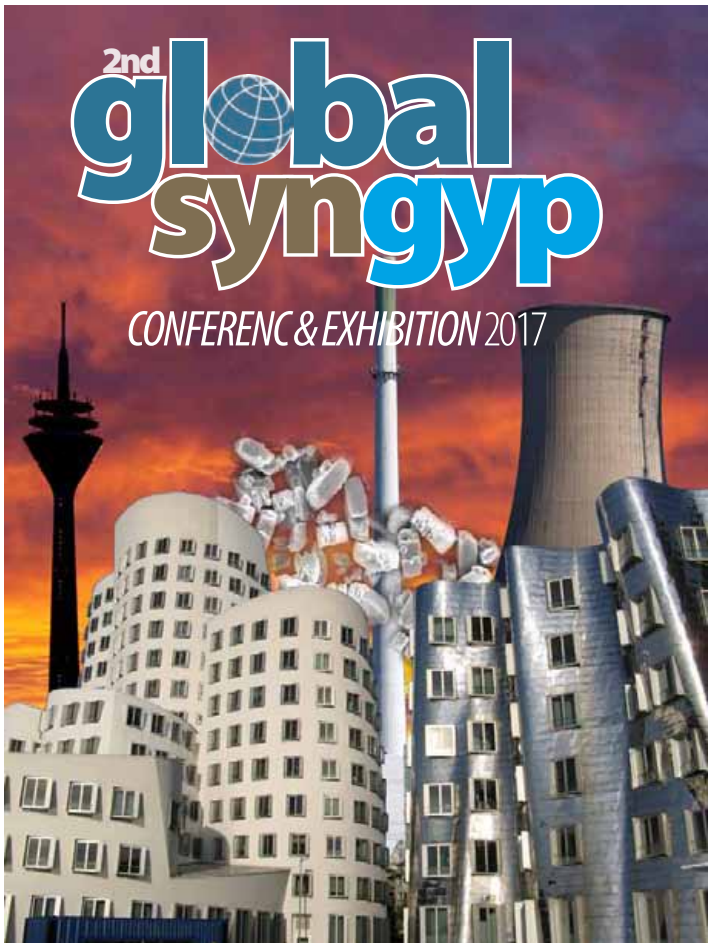

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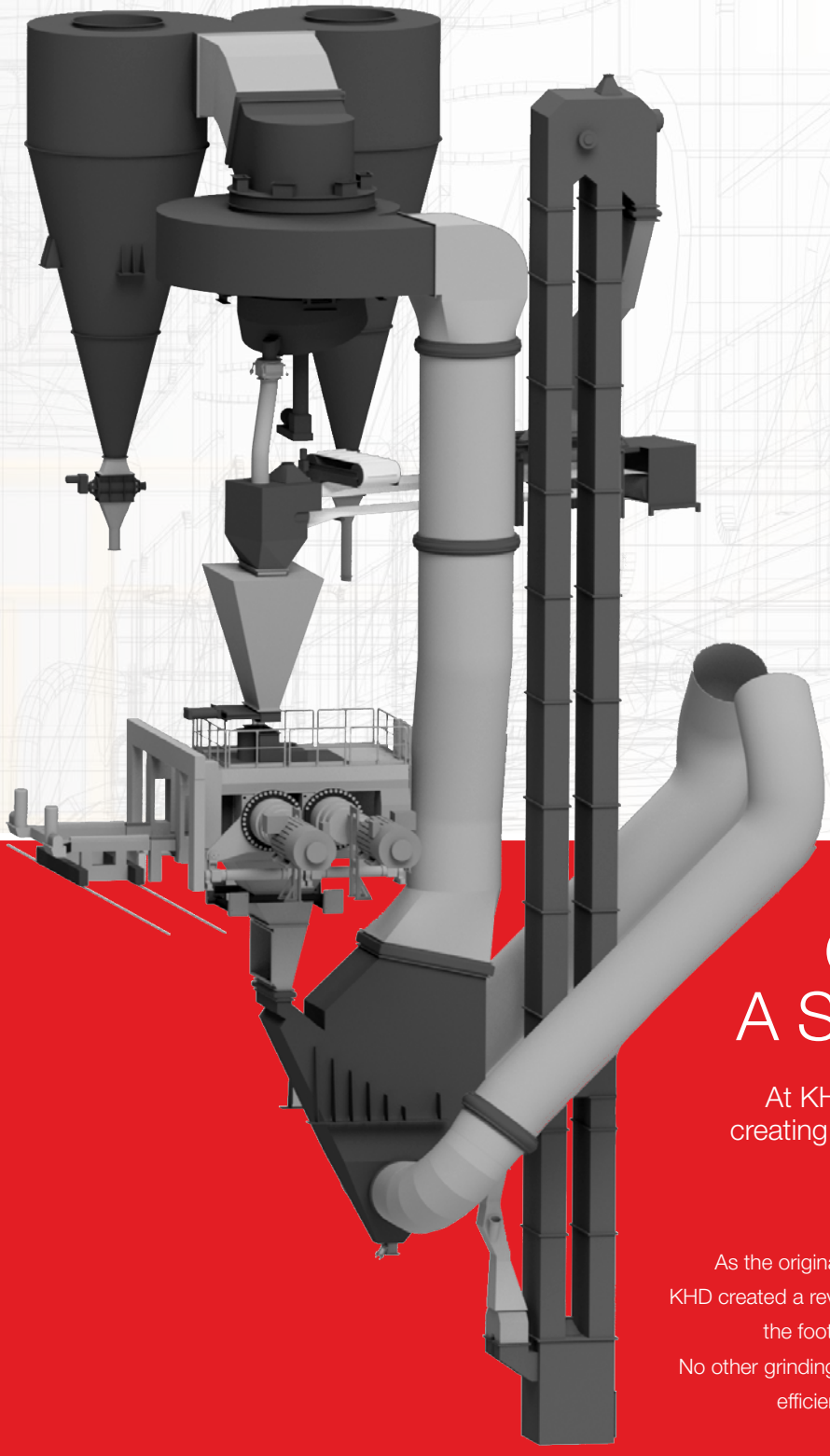
Global Gypsum is pleased to announce the second biennial Global SynGyp Conference and Exhibition, which will take place in Germany in March 2017. The event will once again bring together scrubber operators and other syngyp producers together with syngyp users, as well as equipment producers, shippers, traders, academics and analysts in one place, for information exchange, networking and business. Covering all types of synthetic gypsum (including FGD gypsum, also known as DSG and REA Gips), the event will look at the delicate balance between cost-effective flue gas desulphurisation and the production of a high-quality synthetic gypsum product that can be used by wallboard, cement, agricultural and other sectors.

If your business involves synthetic gypsum, you must attend the 2nd Global SynGyp Conference and Exhibition in 2017!



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Trucost

How cement companies can prepare for business in a low-CO_2 world

Total greenhouse gas (GHG) emissions continue to rise despite the considerable efforts of a growing number of sustainability leaders. Under the current trajectory, temperatures are predicted to rise by almost 5°C by the end of the 21st Century, well beyond levels identified as 'safe.' With the legally-binding deal to limit global warming to 2°C signed in Paris in April 2016, how can cement companies prepare for future conditions...?

In April 2016, world leaders met to sign the Paris climate change agreement, a legally binding deal to limit global warming to 2°C, the level that scientific evidence from the Intergovernmental Panel on Climate Change (IPCC) says is needed to avoid the most severe impacts of climate change. Backing up the agreement are CO_2 reduction plans submitted by 190 countries, including the United States, China, India and members of the European Union.

The importance of science-based targets

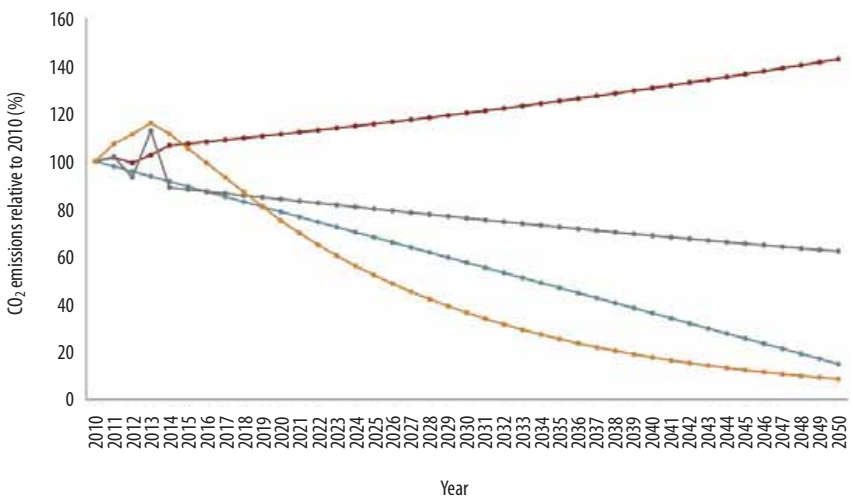
To grow and prosper in a low-CO_2 economy, companies need to set science-based targets that reflect the Paris agreement and CO_2 reduction plans for the countries in which they operate and from where they source supplies. This may involve reviewing existing CO_2 targets to see if they are still fit for purpose.

A science-based target is a commitment to reduce CO_2 emissions to the level needed for the company to make its full contribution towards achieving the 2°C limit on global warming. Companies that make insufficient efforts to cut CO_2 and allow business-as-usual emissions to increase need to consider how they will remain viable in a world in which they fail to align with critical government commitments. Companies risk losing market share and stranded assets, as customers demand low-CO_2 products and services. They risk failing to comply with legislation and may become unprofitable as a result of CO_2 taxes and trading schemes. They risk damage to their reputations as NGOs and the media increasingly seek to expose sustainability laggards.

Science-based targets in construction

Trucost analysed the CO_2 reduction targets of the 10 largest publicly listed European cement and construction companies to see how they compare to a benchmark science-based target for the sector based on the Paris climate agreement to limit global warming to 2°C. The research found that:

- Only one company (Company 1 in Figure 1) has set a science-based target that will cut its CO_2 emissions to the level needed to meet the 2°C limit;
- Another (Company 2) has set a target that is not ambitious enough to achieve the 2°C limit;
- Seven companies reported some form of emissions reduction target, but insufficient information was provided to verify it, such as the lack of a baseline year, or the goal year was short-term;
- One company set CO_2 reduction targets for individual business units and projects, but did not provide any company-wide target;
- The 10 largest companies in the European construction sector, which includes cement manufacturing, emitted 661t CO_2 equivalents for each US$1m of revenue they generated, a total of 215Mt of CO_2 equivalents;
- Over 90% of the CO_2 emissions come from direct sources owned or controlled by the company (Scope 1) with only



Below - Figure 1: Europe's main cement and construction companies are not currently set to keep pace with government policies on lowering CO_2 emissions.

= Business as usual
= Science-based target
= Company 1
= Company 2

Source: Trucost.

9% from the company's consumption of electricity (Scope 2), as categorised under the Greenhouse Gas Protocol. The figure excludes emissions from supplies of raw materials and use of products (Scope 3), which Trucost finds are likely to be greater than 40% of total emissions for the sector. These are rarely reported despite exceeding the threshold for relevance to target setting;

- If the emissions of the 10 construction companies continue on their current trend, they are expected to be at least 40% higher by 2050.

Risks and opportunities

Setting science-based targets will help cement and construction companies grow revenue and generate profits in a low-CO_2 economy. Companies that fail to do so face uncertainty, risk and missed opportunities.

The potential risks include**: 1.** Loss of revenue and stranded assets as customers shift to renewable and low-CO_2 construction technologies; **2.** Reputation damage as the company is perceived to be 'out of touch' by clients and customers; **3.** Lower share price as investors reduce company valuation; **4.** Reductions in asset value from continued investment in CO_2 -intensive construction technologies; **5.** Fines and loss of business due to non-compliance with CO_2 legislation, energy efficiency standards and renewable energy requirements, and; **6.** Increased costs from CO_2 taxes and emissions trading schemes.

Potential opportunities include: **1.** Positioning your company as a sustainability leader by setting a robust and credible science-based target; **2.** Demonstrating robust environmental risk management to stakeholders, from suppliers to customers and investors; **3.** Increasing long-term asset value by designing in materials and technologies that align with science-based targets. This is important in the building sector where assets have a lifespan of 50-100 years; **4.** Spurring ambition and generating innovation to drive new business opportunities as environmental legislation and customer expectation increase the demand for energy efficient, low-CO_2 buildings and construction projects; **5.** Improving access to capital from investors seeking to reduce exposure to CO_2 in their portfolios and via green bonds to finance projects with environmental benefits; **6.** Identifying the business case for investment in emission reduction and energy conservation projects; **7.** Introducing business tools such as shadow pricing to manage risk and identify mitigation strategies.

Setting a science-based target

To set targets, cement producers should gather high quality CO_2 emissions data, which is imperative to ensure reduction targets are meaningful. Companies need data on direct greenhouse gas emissions from operations (Scope 1), indirect emissions from electricity use and transport (Scope 2), as well as emissions from supply chains and use of products (Scope 3). Trucost provides a fast yet robust calculation of supply chain and product in-use CO_2 emissions to determine where they exceed the 40% guideline for relevance to target setting.

Science-based targets will help cement companies grow revenue and generate profits in a low-CO_2 economy.

Producers also need to understand and assess the CO_2 reduction plans of the countries in which they do business, as well as how these may change as a result of new legislation. While some countries may be taking insufficient action to achieve the 2°C Paris climate agreement, companies need to be aware of policy changes.

A science-based target should cover a minimum of five and a maximum of 15 years, although companies are encouraged to set long-term goals as far as 2050. This is consistent with guidelines from the Science Based Targets initiative founded by CDP, UN Global Compact, World Resources Institute and WWF.

Science-based CO_2 targets can be expressed either as an absolute reduction in greenhouse gas emissions compared to a baseline year, as a reduction in GHG intensity normalised by a financial or production metric such as revenue or tonne of product, or a combination of both approaches.

Bloomberg New Energy Finance estimates that achieving the Paris climate agreement would require US$12tn of investments in clean-energy technology and infrastructure over the next 25 years.[1] This presents opportunities for construction companies to capture investment in new low-CO_2 projects.

Capitalising on a low-CO_2 economy

To tap into the growing market for green practices, construction companies need to identify – and communicate – robust environmental and financial benefits of their products. Winners in a low-CO_2, resource effcient economy will be the companies that are best positioned to provide technologies, products and services that enhance asset value.

Trucost provides companies with the transparent and robust evidence they need to substantiate 'net benefit' claims, can inform the leadership strategies of companies by assessing their sustainability performance in relation to peers, sector benchmarks and financial indices and can advise companies on how best to position themselves to capitalise on environmentally-tilted investment opportunities, including CO_2-efficient funds, green bonds and lending policies.

Reference

1. CERES (2016); *'Mapping the Gap: The Road from Paris,'* http://www.ceres.org/resources/reports/mapping-the-gap-the-roadfrom-paris/view.

Martyn Popham, Cenin Cement

Stranded assets and the threat to industry

Cenin Cement's Martyn Popham argues that major cement producers should recognise how carbon costs will come to bear on the cement sector in the future, and offers a solution from the ancient past...

Above: Martyn Popham, Managing Director of Cenin Cement, a producer of ultra low carbon cement in the UK. With a background in civil engineering and a long history in buying and using cements, Martyn regularly speaks at international conferences on the decarbonation of the cement industry.

Here is a sobering statistic: Since 2000, 52% of the companies listed in the Fortune 500 have ceased to exist. While some of the businesses were subject to mergers and acquisitions, the majority lost out because they failed to keep pace with a changing world.

I am not arguing here that everything has to move relentlessly forward. In fact, I believe that the cement industry can learn a valuable lesson from the past at the same time as recognising an urgent future requirement that it would be foolhardy to ignore.

First, a look back in time. It has often been noted that the ancient Romans used a form of concrete that outperforms concrete made with today's Portland cements. Not just iconic buildings like the Parthenon, but harbour structures are also intact after more than 2000 years. Modern concrete commonly shows degradation at around 50 years.

Roman engineers benefitted from the use of volcanic ash, combined with lime to form mortar. Essentially they harnessed the properties of vast amounts of raw materials that would otherwise have remained unused. In doing so, they not only hit upon a production method that was durable but one that was also low-CO_2. At Cenin Cement, our technical team used a similar approach when we developed an ultra-low carbon cement. We turned existing custom and practice on its head. Instead of focusing on the production of clinker and then adding extenders and additions, we make cement by using industrial byproducts that set with the addition of water. If a faster set or higher strength is required, some clinker can be added, but in our world clinker is just a minor addition.

Of course, the volumes that Cenin manufactures don't compare to the volumes in the rest of the global cement industry. Each year, around 4.2Bnt of OPC is produced, a process that creates approximately 1t of CO_2 for every 1t of cement. It is why our industry accounts for around 5% of global CO_2 emissions, a higher percentage than aviation.

So what? This is not news. We have known for some time that existing mainstream production methods are not environmentally friendly. Alongside many other higher profile environmental cement companies, our low-carbon cement can cut clinker use (and hence CO_2) by 80%. However, a large proportion of the cement industry seems to lobby that this is unachievable by 2050.

In my 'world,' the biggest barriers I face on a day-to-day basis are those of resistance to change. I have had trade associations tell us that we will never be allowed to be a member and quality assurance assessors who refuse to assess new products and systems.

But rather than waving the flag for environmentally friendly alternative products, the time has now come to re-think why de-carbonisation will prove critical to longer-term economic performance. A failure to move away from a reliance on CO_2-intensive production *now* will result in a significant threat to the viability of businesses.

> *"Our low-carbon cement can cut clinker use (and hence CO_2) by 80% but a large proportion of the cement industry seems to lobby this as unachievable by 2050..."*
>
> Martyn Popham, Cenin Cement

This is not just my view. At the end of 2015, the Governor of the Bank of England, Mark Carney, spoke to Lloyd's of London about the challenge ahead. He said, "Take, for example, the Intergovernmental Panel for Climate Change's (IPCC) estimate of a CO_2 budget that would likely limit global temperature rises to 2°C above pre-industrial levels. That budget amounts to between a fifth and a third of the world's proven reserves of oil, gas and coal. If that estimate is even approximately correct it would render the vast majority of reserves 'stranded' – oil, gas and coal that will be literally unburnable."

Investors are now factoring in the risk that the 'carbon bubble' represents and are investigating how companies can plan to mitigate it. The Institutional Investors Group on Climate Change (IIGCC) is one of the groups behind the launch of the Investor Platform for Climate Actions, which documents initiatives in 30 countries by more than 400 investors managing US$25tn of funds.

Stephanie Pfeifer is the IIGCC's Chief Executive. She has observed investor behaviour changing, noting, "Some are starting by CO_2 footprinting their portfolios; some are setting targets to decarbonise portfolios; some are exiting positions with the highest risk exposure and others are using low-CO_2 indexes to tilt portfolios away from high-CO_2 assets."

Above: Inside the Cenin Cement factory in Bridgend, Wales.

Going forward

It is inevitable that a split will emerge in our industry. To make a significant reduction in CO_2 emissions, businesses will need to change the way they operate, not just adding some extenders to the clinker. Visionary cement companies will stop, take a cold hard look at their methods and realise that, in order to make highly-sustainable cement in the future, the clinker producing cement plant of today will be just a small part of production in the future.

As well as proving environmentally beneficial, this would result in much lower capital requirements per tonne of installed production capacity, as well as a much higher ratio of grinding to clinker production plants. Some 70-80% of the raw materials would not need to come from the clinker plant. Each finished tonne of cement would have far lower embodied energy and cost less to produce. As a result, there would be a significant reduction in the CO_2 emissions per tonne of cement for low-CO_2 cement produced by a new generation of cement companies.

Tackling CO_2 reduction in the production of cement is an issue for the boardroom and there is a great deal at stake. Cement companies that continue to put all their investments into the production of high carbon cement, even if it is into an efficient, well-engineered modern cement plant, risk it becoming a stranded asset in 30 years' time.

There are rewards as well as risks at play: Changes made now will need less capital as the energy and overall production cost per tonne decreases and enhancing the environmental performance can massively improve a company's economic performance. Businesses could enjoy much higher valuations in their share prices, as the big pension investors seek out not only sound environmental planning but boards that have a longer-term strategic vision that accommodates diversification and asset protection. Once fund managers understand that it is possible to make cement with a much lower capital and energy cost that will result in a highly efficient business, surely change becomes inevitable.

It is possible that those companies that resist change and decarbonise at the slowest rate will see this effect reflected in their share price as fewer fund managers want to hold the stocks. This could be the difference between the cement companies that prosper over the next 50 years and those that flounder into a slow and painful decline.

Changing a system that is designed to produce high-CO_2 cement to the model that is required to produce low-CO_2 cement will take brave CEOs. However, as Mark Carney concludes, "The more we invest with foresight; the less we will regret in hindsight."

The global cement industry has many superb companies run by exceptional teams. The question many will now be asking is, if you are a profitable business that produces high CO_2 cement, are you really relying on short-term gain at the expense of long-term viability?

Some companies will resist change and put up robust arguments about how the decarbonisation of the cement industry can't happen very quickly. Perhaps someday when plants have become stranded assets, some revenue can be gained by showing students and tourists how cement used to be made in the past. But I don't expect that those companies will feature in the Fortune 500 list of 2050.

"The vast majority of reserves (could be) 'stranded' – Oil, gas and coal that will be literally unburnable."

Mark Carney, Govenor of the Bank of England

Left: Cenin has a small but growing presence in the UK cement market.

Tarek Soliman & Charles Fruitiere, CDP Investor Research

Visible cracks: Which cement producers are failing to address future CO_2 costs and water stress?

A new report by CDP (formerly known as the Carbon Disclosure Project) has ranked 12 of the largest global cement producers using five key climate areas for investors. How prepared are major cement producers for future CO_2 emission costs and water constraints? Here CDP presents the main findings of the report, which show room for improvement in many cases...

The cement industry is among the world's most CO_2-intensive, accounting for 5% of global CO_2 emissions. In its current form the sector is not compatible with the binding global agreement signed at COP21 in Paris in 2015.

In this article, we present a league table that ranks 12 of the largest (by market capitalisation) and highest-emitting cement companies. Tightening emissions regulations are expected in the future and, in light of this, we have assessed which companies are preparing appropriately for a transition to a low-CO_2 economy by analysing 15 climate and water related metrics. When taken in aggregate, we believe that these metrics could have a material impact on company earnings and investment decision-making.

The league table

CDP approached a range of multinational and regional cement producers with the request to complete a questionnaire pertaining to various aspects of their CO_2 emissions performance, resource use and water supplies. The summary league table (Table 1) is based on detailed analysis across 15 metrics embedded in the table, which are aggregated to assign an A to E-grade to each company across each of five key areas:

1. Emissions performance: Using emissions profiles as an efficiency proxy for cement production, we assess each company's historical emissions-reduction performance and forward-looking targets towards managing their CO_2 emissions exposure.

2. Energy and material management: We assess the extent to which companies exploit existing opportunities to manage their energy cost base, including deploying best available kiln technology and the use of alternative fuels and alternative raw materials.

3. CO_2 cost exposure: We examine the CO_2 emissions-related cost exposure of the cement companies and the potential impact on earnings under different CO_2 pricing scenarios.

4. Water resilience: We analyse cement companies' exposure to water risks and their respective water consumption levels and trends. We undertake facility-level analysis to assess which companies are at greater risk of business interruption due to water stress, both now and in the future.

Right: Cement companies will face increasing pressure from CO_2 pricing and water constraints in the future, but which companies are best placed to deal with these new challenges?

Source: Magdalena Wolff, entrant to the *Global Cement Photography Competition 2011*.

The cement plant stack shown is at the Grupa Ożarów plant in Ożarów, Poland, owned by Ireland's CRH.

5. Support for CO_2 regulations: We use InfluenceMap's[1] proprietary analysis to assess each company's actions towards supporting or opposing meaningful CO_2 regulation. We believe that firms that are supportive of a transition to a low-CO_2 economy are most likely to benefit from tightening regulations.

Key findings

1. There are large differences between cement production emissions intensities across the companies. The best performers have been reducing their emissions intensities over time and currently operate in line with a 2°C post industrial temperature increase scenario. Others lag behind significantly and have *increased* their intensities in recent years.

We note that all companies will be required to take further abatement action to align themselves with the industry decarbonisation trajectory which tightens significantly post-2025.

2. Only three producers in the study have targets aligned with global carbon budgets that are deemed to be 'science-based.' The vast majority of forward-looking targets for cement companies expire within the coming four years and many existing company targets do not align with a transition to a low-CO_2 economy.

Rank	Producer	Market Capitalisation (2015 US$bn)	Cement production (Mt)	League table score	Emissions Performance	Energy and material management	Carbon cost exposure	Water resillience	CO_2 regulation supportiveness	CDP Performance Band*
1	Holcim	21.4	140***	3.9	A	B	A	B	B	B
	LafargeHolcim	28.9**	256	4.1	Lafarge and Holcim were assessed separately - LafargeHolcim score is aggregated					
2	Shree Cement	6.0	16	4.5	B	B	B	D	A	C
3	Lafarge	19.7	116***	4.7	C	B	A	B	B	C
4	CRH	22.6	20	5.0	C	B	A	A	C	C
5	Cementos Argos	4.6	13	5.5	D	D	B	A	B	B
6	HeidelbergCement	14.5	82	6.0	D	C	B	B	D	A
7	Cemex	10.9	68	6.6	D	C	C	C	B	B
8	Ultratech Cement	12.5	44	7.0	D	C	D	E	A	C
9	Buzzi Unicem	3.0	25	7.7	D	D	D	C	D	B
10	Taiheiyo Cement	3.8	18	8.2	D	C	D	E	E	D
11	Cementir	1.0	10	8.4	E	C	E	D	E	D
12	Italcementi	3.1	43	8.7	E	D	E	D	E	B
				Weighting for each area (%)	30	25	20	10	10	5

Above - Table 1: Condensed summary of the cement company league table.

* = This is the CDP annual performance band (A to E) awarded to companies that responded to CDP's climate change questionnaire. The distribution of A to E is awarded relative to 2233 companies that responded to CDP in 2015.

** = Calculated over the period from 1 January 2016 to 23 May 2016.

*** = 2014 figures. (All others are 2015).

3. The cement industry has significant potential CO_2 cost exposure. The most CO_2-intensive companies could have up to 114% of their earnings before interest and tax (EBIT) at risk from a US$10/t CO_2 price, assuming no cost pass-through. More CO_2-efficient companies show greater resilience and as low as 10% of EBIT at risk from the same price.

4. To deliver deep decarbonisation in coming years, cement companies need to seek longer-term solutions such as CO_2 capture and storage (CCS) and develop less CO_2-intensive cement products. Company disclosure on research and development spending and product development is currently inadequate to assess the extent to which companies are allocating their capital to benefit from a low-CO_2 transition.

5. Lafarge and Holcim, both strong performers in our analysis, merged in 2015. HeidelbergCement (sixth place) is due to acquire Italcementi (12th place) during 2016. The combined entity would benefit from HeidelbergCement's more efficient practices.

6. The three poorest-performing companies in this key area, who are deemed as 'obstructive' to progressive CO_2 regulation, ranked at the bottom of the overall league table, indicating that they are not preparing for a transition to a low-CO_2 economy.

7. Four of the companies assessed source 20% or more of their thermal energy requirements from alternative fuels such as municipal waste and biomass. Such fuel sources can be more economical than traditional fossil fuels but are currently underused by companies based in emerging markets, representing an opportunity for companies.

8. Energy represents around 30% of cement production costs and the most efficient company (Ultratech Cement) uses 25% less thermal energy per tonne of clinker produced than the least efficient (Buzzi Unicem).

9. Across the companies assessed, more than 50% of facilities are currently located in areas of water stress, with 11% of facilities currently in 'high' or 'extremely high' water-stress areas. This latter figure is projected to rise to 34% of facilities by 2030.

11% of assessed facilities are in 'high' or 'extremely high' water stressed areas according to WRI. This is projected to rise to 34% of facilities by 2030.

Company highlights

1. LafargeHolcim: Analysis conducted prior to the merger between Lafarge and Holcim found that the former **Holcim** is ranked first. It is one of only two companies that received an A-grade in the most important key area, emissions performance. It merged with **Lafarge** (ranked third), the only other company to receive A and B-grades in all key areas, in 2015. Lafarge and Holcim have among the lowest emissions intensities and set the most robust reduction targets. Aggregating the two companies would result in a League Table score of 4.1 and a joint company ranking of first.

2. Shree Cement is ranked second and received an A-grade in emissions performance, with the lowest cement production emissions intensity and support for CO_2 regulations. However it received a D-grade in water resilience due to its high exposure to water stress in India.

Above: The successful cement producers of the future will have to be more in tune with global sustainability needs.

The photo shows the AfriSam Dudfield plant in South Africa, with its rehabilitated quarry, now home to wildlife, in the foreground.

Source: Erina du Troit, entrant to the *Global Cement Photography Competition 2016.*

4. CRH has one of the lowest proportions of EBIT at risk from carbon pricing, low water stress exposure and has been increasing its use of alternative fuel.

5. Cementos Argos received its only D-grade in energy and material management, partly due to its lack of historical information disclosure. It is also the only company not to independently verify its Scope 1 and Scope 2 emissions.

6. HeidelbergCement received B-grades in carbon cost exposure and water resilience and is one of only three companies to disclose use of an internal CO_2 price. However its lack of progress against its own emissions-reduction target partly explains its D-grade in emissions performance. HeidelbergCement is due to acquire Italcementi during 2016.

7. Cemex receives one D-grade, in its emissions performance. Its C-grade in energy and material management masks a contrasting performance in the key area. Cemex has the highest use of alternative fuel but is one of the highest thermal energy intensities.

8. Ultratech Cement received a D-grade in emissions performance. Like Shree Cement, it achieved an A-grade for support for CO_2 regulations but it has the highest exposure to water stress of the companies assessed.

9. Buzzi Unicem received D-grades across all key areas except for water resilience (C-grade) and consistently under-performed relative to its peers in CO_2-related metrics.

10. Taiheiyo Cement has the highest emissions intensity of the companies and has the weakest emissions-reduction target. It has significant water stress risk and is also deemed obstructive to progressive CO_2 regulation.

11. Cementir is deemed to be the most obstructive to carbon regulation. Its emissions intensity has increased the most in recent years and it has among the highest proportion of EBIT at risk from CO_2 pricing.

12. Italcementi is the only company to receive D and E-grades across all key areas. It has the highest potential CO_2 pricing cost exposure, is deemed to be obstructive of CO_2 regulations and is significantly off-track to meet its own emissions-reduction target.

Linking our findings to investment choices

CDP recognises that investment decisions are based on a multitude of different factors and that some of these can be misaligned with emissions-reduction efforts. The above league table is not intended to identify definitive winners and losers for investment purposes, but more as a proxy for business-readiness in an industry that is likely to be impacted by the more stringent CO_2 regulations that are needed to meet long-term CO_2 emissions objectives and worsening water security.

We would flag that companies towards the bottom of our league table are possibly higher risk investments from a regulatory perspective than those towards the top. We also highlight that CDP approached several companies that failed to disclose information. These included Anhui Conch, Dangote Cement and Siam Cement. Investors should ask these companies (and others like them) as to why they are not providing sufficient transparency with respect to their CO_2 emissions performance.

Reference

1. InfluenceMap is a UK-based not-for-profit group, whose remit is to map, analyse and score the extent to which corporations are influencing climate policy and legislation: http://www.influencemap.org

The full Executive Summary of the Report *'Visible cracks: Which cement makers are failing to address structural issues'* is available from Carbon Disclosure Project and can be found at: *https://www.cdp.net/Docs/investor/2016/cement-report-exec-summary-2016.pdf.*

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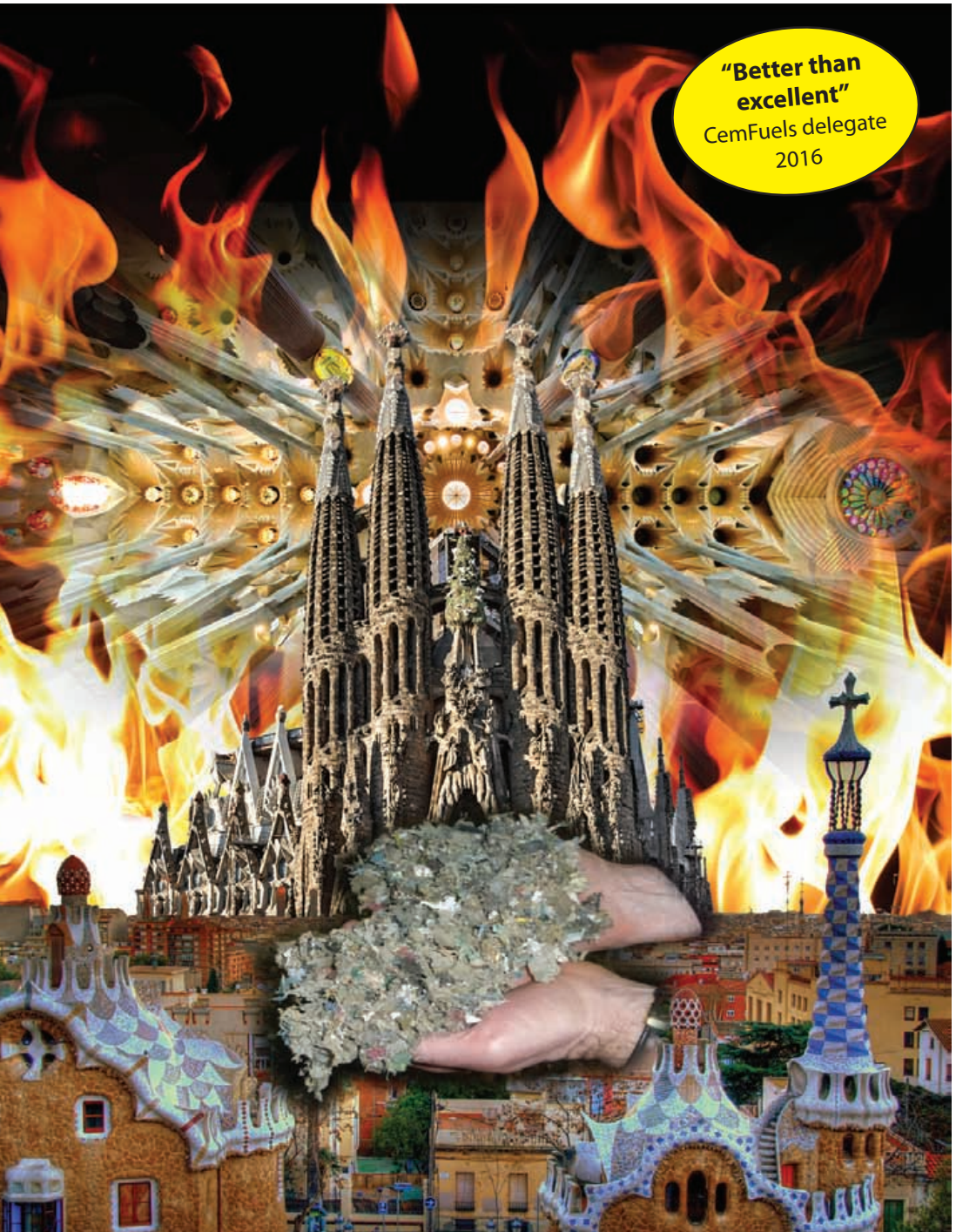

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Peter Edwards, Global Cement Magazine

Top 10 cement producer profiles

The global cement industry saw a number of major combinations, divestments and other changes in 2015, a trend that has continued so far in 2016. Here, we take the opportunity to look at the top 10 global cement producers.

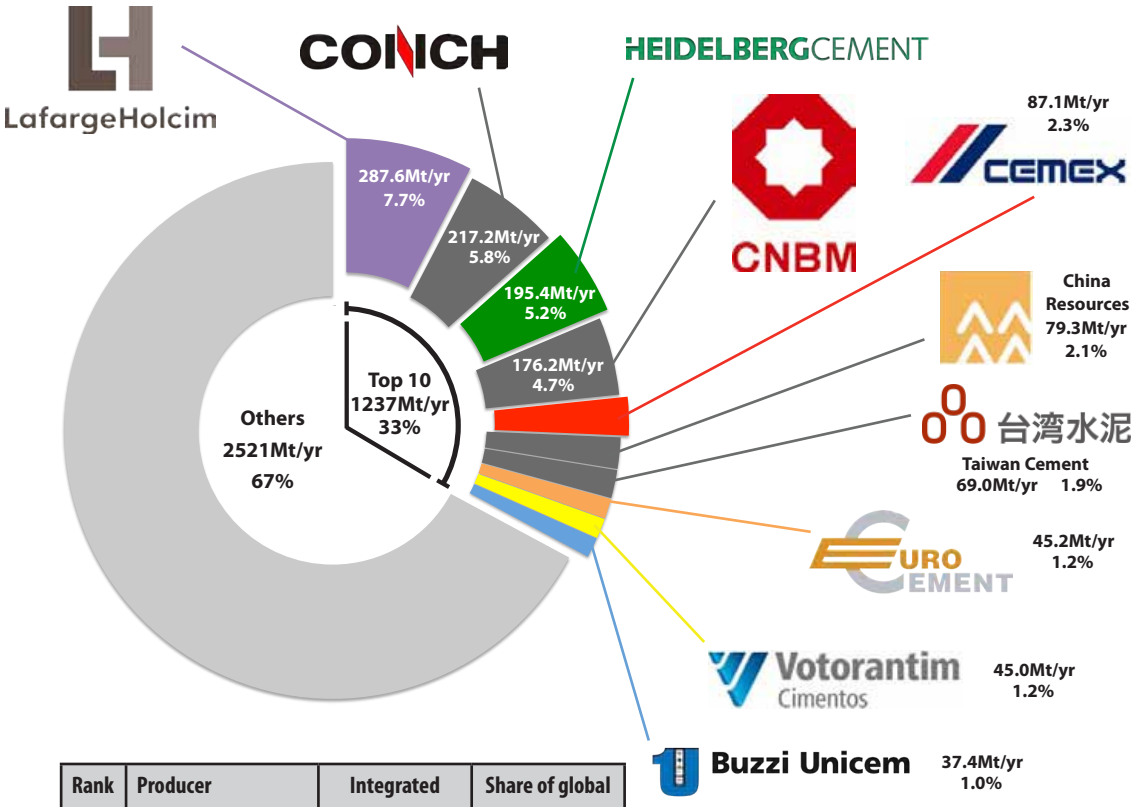
A lot has changed in the global cement industry over the past 18 months, first due to the completion of the LafargeHolcim mega-merger and the ongoing takeover of Italcementi by HeidelbergCement. CRH has climbed up the rankings due to the acquisition of numerous former Lafarge and Holcim assets. Cemex, meanwhile, continues to contract, as it struggles under the weight of the debt it acquired from the 2007 acquisition of Rinker.

Introduction and summary statistics

Figure 1 and Table 2 show the Top 10 global cement producers by installed integrated cement capacity in 2016, according to the *Global Cement Top 100 Report 2016* and subsequent research.

Between them, these producers share 1237Mt/yr of integrated cement production capacity. This is enough to claim nearly a third of all integrated cement capacity worldwide. They have around 3.5 times more capacity than the producers in positions 11 to 20 combined.

Each of the six non-Chinese companies in the Top 10 cement producers operates on more than one continent, with two (LafargeHolcim and Cemex) present in every one. Three of the four Chinese (and Taiwanese) producers operate only in their domestic markets. The geographical distribution of the non-Chinese producers is shown in Table 1.



Right - Figure 1: Top 10 cement producers in 2016, by installed integrated cement capacity. * = includes Italcementi capacity.

Source: *Global Cement Top 100 Report 2016* and research towards the publication of the *Global Cement Directory 2017*.

Overleaf right- Table 1: Locations of integrated and grinding cement production assets of the six largest non-Chinese cement multinationals, including sites in which they have minority shares.

IN = Company committed to entering market.
OUT = Company committed to exit market.

LH = LafargeHolcim.
HC = HeidelbergCement.
Euro = Eurocement.
V'tim = Votorantim.
Buzzi = Buzzi Unicem.

Note: HeidelbergCement includes Italcementi assets despite ongoing acquisition.

Rank	Producer	Integrated capacity (Mt/yr)	Share of global capacity (%)
1	LafargeHolcim	287.6	7.7
2	Anhui Conch	217.2	5.8
3	HeidelbergCement*	195.4	5.2
4	CNBM	176.2	4.7
5	Cemex	84.3	2.3
6	China Resources	79.3	2.1
7	Taiwan Cement	69.0	1.8
8	Eurocement	45.2	1.2
9	Votorantim Cimentos	45.0	1.2
10	Buzzi Unicem	37.4	1.0

Right - Table 2: Top 10 cement producers in 2016, by installed integrated cement capacity. * = includes Italcementi capacity.

Source: *Global Cement Top 100 Report 2016* and research towards the publication of the *Global Cement Directory 2017*.

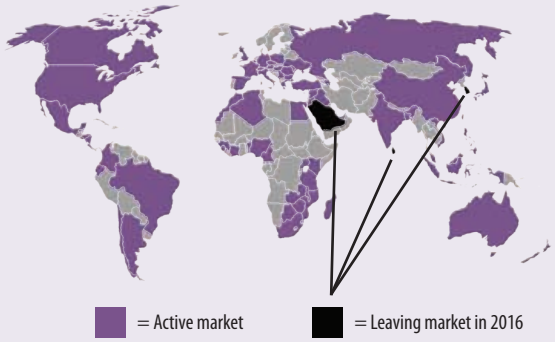
Country	LH	HC	Cemex	Euro	V'tim	Buzzi
Algeria						
Argentina						
Australia						
Austria						
Azerbaijan						
Bangladesh						
Belgium						
Benin						
Bolivia						
Bosnia & Herzegovina						
Botswana						
Brazil						
Bulgaria						
Burkina Faso						
Cameroon						
Canada						
Chile						
China						
Colombia						
Costa Rica						
Croatia			OUT			
Czech Republic						
Dominican Republic						
DRC						
Ecuador						
Egypt						
El Salvador						
Estonia						
France						
Gabon						
Georgia						
Germany						
Ghana						
Greece						
Guinea						
Honduras						
Hungary						
India						
Indonesia						
Iraq						
Italy						
Ivory Coast						
Japan						
Jordan						
Kazakhstan						
Kenya						
Latvia						

Country	LH	HC	Cemex	Euro	V'tim	Buzzi
Liberia						
Madagascar						
Malawi						
Malaysia						
Mexico						
Moldova						
Montenegro						
Morocco						
Mozambique						
Netherlands						
New Zealand						
Nicaragua						
Niger						
Nigeria						
Norway						
Panama						
Peru			IN			
Puerto Rico						
Philippines						
Poland						
Romania						
Russia						
Saudi Arabia	OUT					
Serbia						
Sierra Leone						
Slovakia						
Slovenia						
South Africa						
South Korea	OUT					
Spain						
Sri Lanka	OUT					
Sweden						
Switzerland						
Syria						
Taiwan						
Tanzania						
Thailand						
Turkey						
UAE						
Uganda						
UK						
Ukraine						
USA						
Uzbekistan						
Vietnam						
Zambia						
Zimbabwe						

1. LafargeHolcim

LafargeHolcim, the largest cement producer in the world, is also the youngest in the Top 10. It was formed in 2015 by combining the bulk of the assets held by the former multinational producers Lafarge and Holcim. Both groups separately had a rich history in the cement sector.

HQ	Switzerland
Capacity	286.7Mt/yr
CEO	Eric Olsen
2015 Revenue	US$30.6bn



LafargeHolcim can trace its history back to the founding of one of its 'parent' companies, Lafarge, in France in 1848. The company expanded into North Africa in the 1860s and moved to the Canadian and Brazilian markets in the 1950s. In 1980 Lafarge merged with Coppée and acquired a majority stake in General Portland in the US. The acquisition of the Swiss Group Cementia in 1989 also brought new capacity in Austria, Kenya, Spain, Indonesia and further plants in the USA. The 1990s saw a move to China and India before the wholesale acquisition of the UK's Blue Circle in 2001 took Lafarge to the global number one spot, with 215Mt/yr of capacity prior to the merger.

The other 'parent', Holcim, was formed in 1912 in Switzerland. It expanded into other European countries and Egypt before the Second World War and entered the North and South American markets and Asia afterwards. It was a fast mover into the former USSR in the 1990s. In the 21st Century it expanded to China and India and strengthened its North American positions. It had 211Mt/yr of cement capacity prior to the merger.

Summary of the merger

LafargeHolcim was formed in July 2015 from two 'parent' companies, Lafarge and Holcim, following an April 2014 announcement that the two would merge. While initially presented as a 'merger of equals,' the final deal gave 55% of LafargeHolcim shares to Holcim shareholders, after they argued that Lafarge's financial performance had slipped behind that of Holcim in 2014 and the first half of 2015.

In order to complete the merger, a significant package of former Lafarge and Holcim assets were slated for sale over competition concerns. Affected markets included France, Germany, Hungary, Romania, Serbia, the UK, Canada, Mauritius, the Philippines and Brazil. Many assets in these countries were sold to the Irish group CRH in August 2015, two weeks after the completion of the merger.

Despite this sale, LafargeHolcim remained the largest cement producer in the world by installed integrated capacity. Today it controls 286.7Mt/yr of integrated cement capacity in more than 60 countries on every inhabited continent.

Financial situation

Despite its leading position in capacity terms, LafargeHolcim has seen its financial performance slide marginally so far in 2016 compared to 2015. It blamed the fall in sales on 'challenging conditions,' particularly in Nigeria, Brazil and India, although it is possible that the effects of merging two such large entities also played a part.

In the first quarter of 2016 the group saw sales fall by 5.5% year-on-year relative to the first quarter of 2015, to Euro6.6bn. However, cement sales volumes were up by 1.4% to 56.6Mt. LafargeHolcim's earnings before interest, taxation, depreciation and amortisation (EBITDA) fell by 15.6% to Euro774m. In 2015 it reported a 6.2% fall in net sales to Euro26bn as cement sales stayed virtually static at 255.2Mt.

LafargeHolcim has already taken steps to reduce its exposure in some markets that

Right: Aerial view of the LafargeHolcim Čížkovice cement plant in the Czech Republic.

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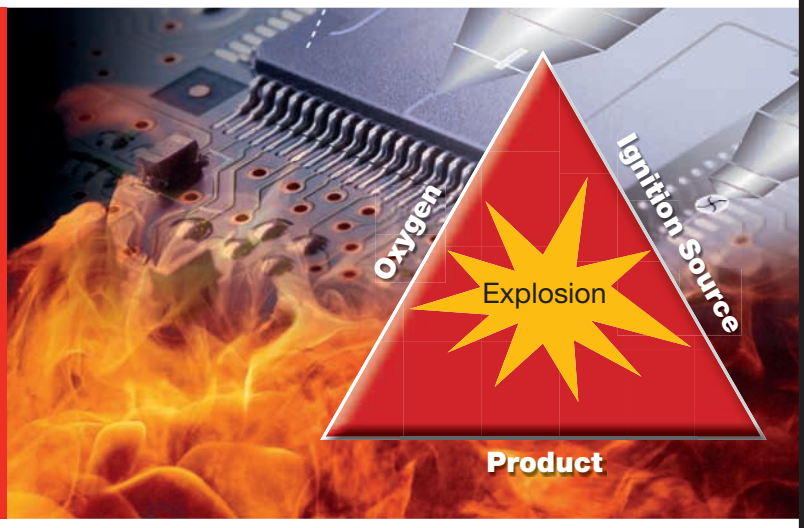

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are currently under-performing. In February 2016, LafargeHolcim announced that it had permanently stopped clinker production at its Voskresenskcement plant in the Moscow region of Russia due to market contraction and oversupply. It also aborted a project to expand its Sagunto quarry in Spain following a review of its investment priorities. LafargeHolcim has also called a halt to planned expansion work at its Joppa plant in Illinois, US, which is less easy to understand given the solid growth seen in that country in 2015 and so far in 2016.

However, these reductions in expenditure are allowing investment to be redirected to more rapidly-growing areas. Morocco is one such market. Here, LafargeHolcim has signed an agreement with its local parnter SNI to enlarge its joint-venture by merging Lafarge Ciments Maroc and Holcim Maroc to create LafargeHolcim Maroc. LafargeHolcim and SNI would own a 64.7% stake in the new company once the merger is complete. The group expects to gain a synergy savings of Euro41m in the two year period following the merger.

Also in Africa, LafargeHolcim has completed the installation of a 0.1Mt/yr Cemengal Plug & Grind grinding plant at its Lafarge Zambia plant in Ndola, Zambia. The mobile nature of the equipment means that it can be moved in the future if required.

On the other side of the world, Holcim New Zealand officially opened its 30,000t cement terminal at Timaru, New Zealand, also in February 2016. The US$34m project is intended to serve both the South Island and lower North Island.

However, the group has also opened a new facility in Barroso, Brazil after a construction and commissioning period that saw a dramatic downturn for South America's largest economy. The construction sector shrank by 7.5% in 2015 and cement consumption has fallen in 2015 and shows no signs of recovering in 2016. It may be difficult for LafargeHolcim to find a market for the 3.6Mt/yr facility's output, at least in the short term.

Going forward

Following the sale of major assets to CRH (and the ongoing sale of former Lafarge assets in India), LafargeHolcim has recently announced further divestments in an effort to trim its debt and focus on its core markets.

So far this has included confirmation that it will sell its entire stake in Lafarge Halla in South Korea to private equity funds Glenwood Private Equity and Baring Private Equity Asia for a sum in the region of US$455m. The deal is expected to be completed in the second half of 2016. Meanwhile, LafargeHolcim will exit Saudi Arabia by selling its 25% stake in Al Safwa Cement Company to El-Khayyat Group for Euro120m. The transaction is expected to go through in the third quarter of 2016. More recently, LafargeHolcim has announced that it will also leave the rapidly-growing Sri Lankan market. It is currently looking for a buyer. LafargeHolcim announced that it planned asset sales in nine further countries in June 2016 but has not named them so far.

However, further capacity is also being added in developing markets. In Algeria, CILAS, a joint operation between LafargeHolcim's Lafarge Algeria and local firm Souakri has recently started clinker grinding at its new Biskra plant ahead of the full launch of the 2.7Mt/yr line in the second half of 2016.

Meanwhile, the group is also investing in production in established European markets, such as at the Mannersdorf plant in Austria. Upon announcement of the merger the plant was expected to be sold but LafargeHolcim retained ownership after the merger. The group has now contracted Austrian combustion expert A TEC and Czech firm Aliacem s.r.o Přerov, which are working on plans to increase kiln output by using more coarse and lower calorific fuels. The aim is to reach 100% alternative fuel use. Erection works will start in September 2016 and the whole project will be finished in March 2017.

Right: The LafargeHolcim Mannersdorf plant in Austria could be headed to 100% alternative fuels come early 2017.

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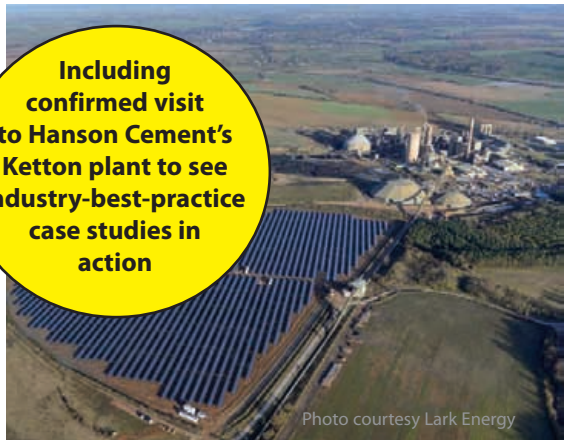

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Day theme: Process efficiency in a competitive market

Session 1: Global trends in cement supply and demand

Session 2: Process optimisation in the cement industry

18.00 Social evening

Second day

Day theme: Maximising production in a sold-out market

Session 3: Trouble-shooting case-studies from the global cement industry

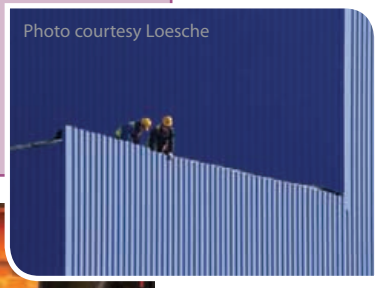
Session 4: Maximising cement production

Session 5: De-bottlenecking for production maximisation

18.00 Farewell party

Third day

Field trip to Hanson Cement's Ketton cement plant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2. Anhui Conch

Anhui Conch was founded in 1997 and grew rapidly as China's cement consumption rose in the early 2000s. Like other Chinese producers, it has had to adjust to falling demand recently, although its sheer size and entry into other markets have helped to insulate it more than other producers.

HQ	China
Capacity	217.2Mt/yr
Chairman	Guo Wensan
2015 Revenue	US$7.6bn

Anhui Conch is the second-largest cement company in 2016 with 32 cement plants and 217.2Mt/yr of cement production capacity, according to the *Global Cement Directory 2016.*

Financial situation

Anhui Conch had a tough 2015 against the backdrop of the first fall in official Chinese cement production in a quarter of a century. The group reported that its net profit fell by 30% year-on-year to US$1.16bn in 2015 as revenue fell by 16% to US$7.63bn. However, it reported that its cement output grew by 2% to 224Mt in 2015. It reported that its cement production capacity had reached 290Mt/yr by the end of 2015. As a result of increased cement sales, Anhui Conch increased its market share to 11% in 2015 compared to 2014, indicating that, in production terms at least, it is outperforming its domestic rivals. With respect to its financial performance, the company blamed slower fixed-asset investment and a slowing housing market limiting the demand of cement and pushing prices down.

The slide downward has accelerated for Anhui Conch so far in 2016. In the first quarter its net profit dropped by 45% year-on-year to US$123m from US$233m in the same period in 2015. Its revenue fell by 5.5% to US$1.63bn from US$1.73bn. It attributed the decreases in profit and sales revenue to falling prices.

Official Chinese cement production fell in 2015 for the first time in 25 years... from 2.5Bnt to 2.35Bnt

Chinese player to regional player

The vast bulk of Anhui Conch's income comes from China. In view of the overcapacity in the country, it has taken the lead of China's cement plant manufacturers and invested in projects outside of China. It currently has interests in Laos, Cambodia, Myanmar and Indonesia.

In May 2016 Anhui Conch officially launched the second production line at a greenfield cement plant project in South Kalimantan at its local subsidiary PT Conch South Kalimantan. The plant is now able to produce 3200t/day (1Mt/yr) of cement.

A second Indonesian plant, this time in Manokwari, West Papua, is slated to start production in July 2016. The 1.5Mt/yr facility will be operated by PT Conch-SDIC Papua Cement Indonesia, a joint venture between Anhui Conch and the Indonesian State Development and Investment Corp. The project will cost a total of US$400m.

Right: Chinese producers are increasingly looking abroad for growth as the domestic market falters. The image shows the launch of the second line at PT Conch South Kalimantan, Indonesia in May 2016.

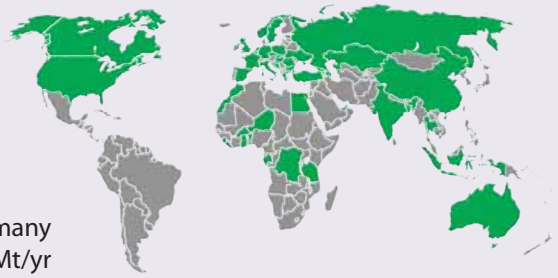
Going forward

Despite the recent downturn in China, Anhui Conch is reportedly increasing production of cement during 2016 and ahead of an expected increase in demand during the second half of the year. If realised, this means that its market share could increase further over the course of the year.

However, with Chinese growth slowing all the time and significant overcapacity, Anhui Conch could be in for a hard time over the coming few years.

3. HeidelbergCement

Germany-based HeidelbergCement has recently risen up the global cement capacity rankings, following its July 2015 announcement that it would acquire Italcementi. The company is currently finalising the acquisition of an initial 45% stake in its Italian rival, before increasing its stake.



HEIDELBERGCEMENT

HQ	Germany
Capacity	195.4Mt/yr
CEO	Bernd Scheifele
2015 Revenue	US$13.5bn

HeidelbergCement is the number three cement company in 2016 with 197.2Mt/yr cement production capacity, including the assets of Italcementi.

Financial situation

HeidelbergCement CEO Bernd Scheifele reported that 2015 was, 'By far the best year for HeidelbergCement since the financial crisis.' Its revenue rose by 7% to Euro13.5bn, with operating income up by 16% to Euro1.8bn. HeidelbergCement reported that much of its improvement could be traced to its in-house efficiency programmes, through which it had been able to increase its margins. Its cement sales remained stable year-on-year at 81.1Mt (from HeidelbergCement capacity only).

In the first quarter of 2016 HeidelbergCement reported that its revenue was static year-on-year compared to the first quarter of 2015, at Euro2.8bn. It sold more cement during the quarter however, shipping 17.6Mt compared to 16.8Mt. Its performance was helped by strong performances in the US, Germany and the UK.

Left: The Padeswood cement plant, operated by UK HeidelbergCement subsidiary Hanson.

Italcementi takeover

In July 2015, HeidelbergCement announced plans to acquire Italcementi, a move that will take its cement capacity from around 130Mt/yr to nearly 200Mt/yr. The acquisition is subject to customary conditions and received approval from the European Commission. In order to satisfy competition requirements, HeidelbergCement will have to sell Italcementi's Belgian assets. Otherwise, HeidelbergCement would have owned more than 50% of cement capacity in that country. Ireland's CRH was earlier linked with the purchase of the same assets in May 2016.

Clearance was earlier received from the authorities in other countries where Italcementi and HeidelbergCement both have assets: India, Canada, Morocco and Kazakhstan. Clearance was gained in the US in June 2016. One cement plant will be sold.

Other current projects

In April 2016, HeidelbergCement made the unusual step of announcing a new cement production line in Germany, for its Schelklingen plant in Baden-Württemberg. The ThyssenKrupp line will have a capacity of 4500t/day (~1.5Mt/yr) and will replace an existing, less efficient line of the same size.

"Although most of the cement contracts we have been awarded recently have been to build new production capacities in growth regions, this order shows that there is also demand in Europe to modernise and expand existing facilities," said Lothar Jungemann, head of ThyssenKrupp Industrial Solutions' Cement unit.

HeidelbergCement is also in the process of upgrading its 1.1Mt/yr Burglengenfeld cement plant in Bavaria. The plant will be fitted with a new clinker cooler from IKN by the close of 2016, with new pyroprocessing equipment from A TEC and mills from Gebr. Pfeiffer.

Outside of its native Germany, HeidelbergCement Caucasus has announced that it will spend US$120m on upgrading its Kaspi cement plant in Kazakhstan. Most of the budget will be spent on building a new dry cement production line at the site.

Going forward

The acquisition of Italcementi by HeidelbergCement will be completed during the second half of 2016. The integration process will last until 2020.

4. CNBM

CNBM, founded in 2004, is one of the youngest companies in the Top 10. Like domestic rival Anhui Conch, it grew rapidly in the 2000s as China's cement demand rose. It operates its cement capacity solely in China via a number of subsidiaries.

HQ	China
Capacity	176.2Mt/yr
Chairman	Song Zhiping
2015 Revenue	US$15.4bn

China National Building Materials (CNBM) is the fourth-largest cement producer in 2016, with 94 cement plants and 176.2Mt/yr of cement capacity. It operates its cement interests via the following subsidiary companies, each of which has its own subsidiaries:

- **China United (100% stake):** 101Mt/yr of cement production capacity from more than 30 subsidiaries in Shandong, Jiangsu, Henan, Hebei, Anhui and Sichuan Provinces.
- **South Cement (80% stake):** 148Mt/yr of cement production capacity in Zhejiang, Shanghai, Jiangsu, Anhui, Hunan, Jiangxi and Guangxi Provinces.
- **North Cement (70% stake):** 33Mt/yr of cement production capacity, a joint venture with Liaoyuan Jingang Cement and Hony Capital Management.
- **Southwest Cement (70% stake):** 117Mt/yr of cement production capacity via Chongqing Kehua Group, Sichuan Lisen, Yunnan Simao Jianfeng Cement and Guizhou Taian Cement (70Mt/yr), among others.

Financial situation

CNBM reported very poor financial performance in 2015 compared to 2014. Its net profit fell by 83% year-on-year to US$157m, with revenue down by 17.8% to US$15.4bn. It blamed the decrease in its profits on a steep drop in cement sales due to a national slowdown in fixed-asset investments, infrastructure construction and real estate investments.

In the first quarter of 2016 CNBM had an operating revenue of US$2.9bn, 9% lower than the US$3.2bn it took in the first quarter of 2015. Its profit before tax was US$28.6m, a massive 71% drop compared to the US$98.0m that it made in the first quarter of 2015. Its net profit was US$29m, compared to US$64.5m in 2015, a 55% drop year-on-year.

Recent events

CNBM cancelled its acquisition of Shanshui Cement in May 2016 due to changes in the board composition, disputes regarding the control of Shandong Shanshui Cement Group, the financial difficulties of Shanshui Cement and the prolonged suspension of trading of the shares in Shanshui Cement.

The company added that the final issue 'significantly and adversely' affected the liquidity of the company and impaired attempts to determine the current market price of shares in Shanshui Cement. Shanshui Cement has faced financial troubles since a shareholder battle for control of the company took place in late 2015.

Right: A CNBM cement plant.
Source: CNBM website.

CNBM's net profit fell by 83% in 2015 compared to 2014...

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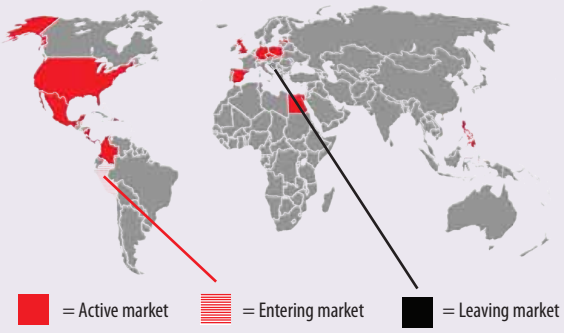
5. Cemex

Mexico's Cemex has been selling minor assets recently as it continues to reduce the debt that it took on via the 2007 acquisition of Australia's Rinker. It retains its strong base in the Mexico and surrounding countries in the Americas, plus capacity in key European markets, Egypt and the Philippines.

HQ	Mexico
Capacity	84.3Mt/yr
CEO	Fernando Gonzalez
2015 Revenue	US$14.1bn



Cemex will have left...

Austria, Bangladesh, Bosnia & Herzegovina, Croatia, Hungary, Montenegro, Serbia & Thailand

...in two years by the end of 2016.

The modern-day Cementos Mexicanos (Cemex) can trace its history back to 1906 and the founding of Cementos Hidalgo in northern Mexico. It merged with domestic rival Cementos Portland Monterrey, renaming as Cemex in 1931. Expansion throughout the mid-part of the 20th Century expands its influence in Mexico with eight production lines by 1974. Cemex also acquired rival Cementos Guadalajara in 1976 and broke into the Top 10 global cement producers in the 1980s.

In 1992 it entered Spain, its first foreign market. This was rapidly followed by entry into Venezuela, Panama and the USA in 1994, the Dominican Republic in 1995, Colombia in 1996, the Philippines in 1997 and Egypt and Costa Rica in 1999. Expansion continued in the US in 2000 with the acquisition of Southdown. This made Cemex the third largest cement producer worldwide.

Expansion continued in the 21st Century in Thailand (2001), Puerto Rico (2002) and a host of European markets, including Germany, Latvia and the UK, via the acquisition of RMC (2003). It gained further assets through the acquisition of Australia's Rinker in 2007. In 2016 Cemex is the fifth-largest cement producer in 2016, with 84.3Mt/yr of cement production capacity.

Financial situation

Cemex's net sales rose by 3% year-on-year to US$3.2bn in the first quarter of 2016 when adjusted for ongoing operations and for currency fluctuations. Its adjusted gross profit rose by 10% to US$1bn and its operating earnings before interest, taxation, depreciation and amortisation (EBITDA) rose by 3% to US$583m before adjustment. The Mexico-based cement producer attributed the rising sales to higher prices and sales volumes increases in selected territories.

In the first quarter, the company's overall cement sales volumes rose slightly to 15.6Mt from 15.5Mt. By region, cement volumes rose by 8% in the US, by 3% in South American, Central America and the Caribbean and by 10% in Asia, Middle East and Africa. Volumes remained static in Europe and fell by 13% in Mexico.

The first quarter results came on the back of improved performance in 2015, in which it returned to net profit for the first time in six years. Cemex's consolidated sales increased by 5% for the year as a whole to US$14.1bn, with operating EBITDA rising by 9% year-on-year to US$2.6bn.

Current activities

For the past 10 years Cemex has been somewhat constrained by the debt that it took on from the acquisition of Rinker, which it has struggled to pay down during the global financial crisis. Asset sales have become a frequent feature of its press releases in 2015 and 2016.

In May 2016 Cemex closed the sale of its Thai and Bangladeshi assets, which were bought by Siam City Cement for US$53m in a deal that had been announced in March 2016. Also in May 2016, it announced the sale of two US cement plants (2Mt/yr capacity, among related assets) to Mexican rival Grupo Cementos de Chihuahua for US$400m. It has also taken steps to reduce its stake in the Philippines, by selling a minority stake in Cemex Philippines.

These moves in 2016 continue the trend from 2015, during which Cemex sold its concrete and aggregate activities in Hungary and Austria for Euro160m. It is also in the process of selling its three Croatian cement plants (1.9Mt/yr combined) to HeidelbergCement subsidiary Duna Dráva Cement, along with non-cement production assets in Bosnia & Herzegovina, Montenegro and Serbia.

However, not all Cemex news from the past year has been about contraction. In Nicaragua and Peru, Cemex is in the process of developing new grinding and packing plants. In the case of Peru, this will represent a new market.

Going forward

While the sale of assets in Asia, Europe and North America is an indication of the severity of Cemex's problems, it also indicates a willingness to eliminate its debt, with the eventual aim of recovering its investment grade rating.

6. China Resources Cement

State-owned China Resources has been in operation since 2003. In 2016 the company operates 42 clinker production lines and 91 grinding plants across seven Chinese Provinces, predominantly in the far south and north east of the country.

HQ	China
Capacity	79.3Mt/yr
Chairman	Fu Yuning
2015 Revenue	US$3.5bn

China Resources Cement has recently been buffetted by the poor conditions in the Chinese economy. Its revenue fell by 24% year-on-year to US$609m in the first quarter of 2016 from US$800m in the same period of 2015. Its gross profit fell by 39% to US$126m from US$207m. It blamed the drop in gross profit on lower selling prices in the quarter compared to 2015. China Resources reported that its sales volumes of cement grew by 6% to 15.8Mt in the quarter. Rises in sales volumes were reported in Guangxi, Yunnan and Guizhou.

Left: The Fenghai Cement plant in Guangdong Province was expanded in late 2015, despite overcapacity in the Chinese cement market.

Fengkai plant expansion

On 18 December 2015 commenced operation of its fifth clinker production line at its plant in Fengkai County, Guangdong Province. The 1.6Mt/yr line took the company's cement capacity in that Province alone to 19.5Mt/yr.

7. Taiwan Cement

Taiwan Cement was established in 1946. It is the seventh-largest cement producer in 2016, with around 69Mt/yr of cement capacity in Taiwan and China.

HQ	Taiwan
Capacity	69Mt/yr
Chairman	Leslie Koo
2015 Revenue	US$2.9bn

Like other producers in the region, Taiwan Cement has reported 'weak' business conditions in 2015 and 2016. Its net income fell by 47% to US$178m in 2015 from US$334m in 2014. Sales dropped by 21% to US$2.89bn from US$3.65bn. It blamed the result on falling prices and lower demand in China due to oversupply of cement. However, it reported that exports to China had increased in the first quarter of 2016. Shipments grew by 18% year-on-year to 10.8Mt in the first quarter of 2016 from 9.2Mt in the same period in 2015

Going forward

Taiwan Cement is pinning its hopes on some improvement in the second half of 2016. The company's senior vice-president Edward Huang said that overall demand for cement in 2016 would remain the same or improve compared to 2015, citing transport infrastructure projects in Taiwan and potential demand in China as opportunities for growth.

Taiwan expects cement production overcapacity 'to end' in 2016 as the Chinese government continues to close cement plants. It also expects cement prices to start to grow again throughout the year based on price rises in the first quarter of 2016. The company plans to build four production lines in 2016 and a new cement plant in Shaoguan, China, is expected to start production in the first half of 2017.

8. Eurocement

Founded in 2002, Eurocement is the largest producer of cement in Russia. It is currently suffering from the slowdown in the Russian construction market, which has been caused by sustained low oil prices and international disputes over the sovereignty of the Crimean peninsular.

HQ	Russia
Capacity	45.2Mt/yr
CEO	Mikhael Skorokhod
2015 Revenue	Does not disclose

Right: All of Eurocement's products should come from dry process facilities by 2020.

Eurocement was formed in 2002 following the merger of Rosuglesbit and Shtern-cement. It initially had four cement plants but acquired a further seven in 2005 to become a leading force in the Russian cement sector and has since increased its production base to include more sites in Russia, as well as in Ukraine and Uzbekistan.

Financial situation

Eurocement does not publish full financial results, so it is not possible to comment on the state of the business from this perspective.

Current activities

Russia has a large amount of older, wet process cement capacity, a legacy of the former Soviet Union. In order to increase its efficiency, Eurocement is currently in the process of converting its wet process facilities to dry process. It has committed to completing this job by 2020, although it previously stated that this would be the case by 2018. Most recently it completed work on a dry conversion at its Podgorensky plant. Eurocement's website states that it is committed to various other upgrade projects.

Going forward

The apparent delay of the conversion of Eurocement's production base to dry processing may be due to the current poor state of the construction sector in Russia. The country's cement production fell by 9% year-on-year to 62.1Mt/yr in 2015, following several years of growth. Filaret Galchev, the owner of Eurocement, does not hold high hopes for the sector in 2016, stating in May 2016 that he expects demand to fall by 8-10% in 2016. This is on top of a 12% fall in demand in 2015. Eurocement states that it expects to sell around 20Mt of cement in Russia and about 3.5Mt in Uzbekistan, Ukraine and elsewhere across the whole of 2016.

Eurocement has committed to 100% dry production by 2020, although it previously stated that this would be the case by 2018...

Eurocement cuts its losses and sells LafargeHolcim shares

Eurocement sold its 6.12% stake in LafargeHolcim to Sberbank in February 2016 after the shares lost over 50% of their value in six months. With Eurocement having previously owned 10.8% of Holcim, Eurocement CEO Filarat Galchev had fought hard to successfully increase the value of Holcim shares relative to Lafarge shares in the wranglings over the mega-merger, even claiming that he was deserving of a seat on the board at one point. Eurocement has now cut its losses but must still be smarting from seeing its former strong position in (Lafarge)Holcim devalue so rapidly.

9. Votorantim Cimentos

The only South American producer on the list, Brazil's Votorantim Cimentos is active in four countries in North and South America, as well as Turkey. It reported record revenues in 2015, although conditions in its domestic market mean that foreign markets are becoming increasingly important.

Votorantim Cimentos

HQ	Brazil
Capacity	45.0Mt/yr
CEO	Walter Dissinger
2015 Revenue	US$2.0bn

Votorantim Cimentos was established in 1933, with the construction of the Santa Helena factory in Votorantim, São Paulo state completed in 1936. The company opened several more Brazilian plants and acquired others between 1942 and 2001, by which time it operated 22 units and claimed 42% of the Brazilian market.

Internationally, Votorantim has majority interests in Itacamba, Bolivia, where it earlier planned the completion of a new 0.9Mt/yr plant at Yacuses by the end of 2016. It also owns two cement plants in Canada via St Marys Cement, which it acquired in 2001. It also operates St Marys plants in the US, as well as Suwannee American Cement. The St Marys assets were previously operated by Blue Circle but had to be divested by Lafarge following its acquisition of Blue Circle.

Left: Votorantim Cimentos operates in Canada and the US through St Marys Cement. The Bowmanville plant in Ontario, Canada is shown.

Financial situation

Votorantim's cement sales volumes fell by 6% year-on-year to 35Mt in 2015 from 37Mt in 2014. The Brazilian industrial group blamed the loss of sales volumes on the poor economic situation in Brazil. However, its revenue rallied due to currency variations and growing sales outside of Brazil. Net income dropped by 77% to US$103m.

However, Votorantim somehow managed to hold its cement business revenue up; increasing it by 6% to US$3.82bn in 2015. Despite this, Votorantim recently announced plans to temporarily shutdown kilns and plants and sell off selected concrete assets.

Fine for anti-competitive actions

In February 2016 the office of the Superintendent-general of the antitrust watchdog Cade recommended fines for Votorantim, Holcim and Cimento Tupi for a coordinated refusal to sell certain types of cement in São Paulo state.

Votorantim launches new product range

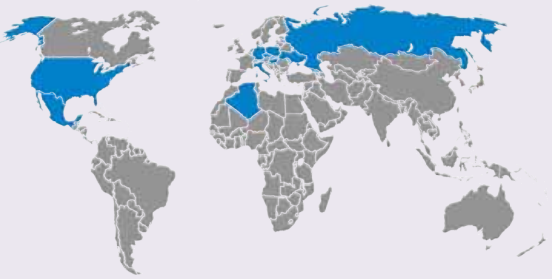
Votorantim Cimentos has launched a new portfolio of bagged cement for the Brazilian market. The launch follows research with construction professionals and stakeholders. The company then set up a multi-disciplinary group to develop its new portfolio of bagged cement from a consumer's viewpoint.

Votorantim contracts Loesche in Turkey

In November 2015 Votorantim placed an order for a type LM 48.4 Loesche mill for grinding cement at its Sivas 2 RM project in Turkey. The order was placed on behalf of Votorantim by China's Tianjin Cement Industry Design and Research Institute (TDI).

10. Buzzi Unicem

Italy's Buzzi Unicem was founded in 1907 and is the only family-owned cement producer on the list. It has a range of wholly-owned plants and subsidiaries, with cement production interests in nine countries in Europe and North America.



HQ	Italy
Capacity	37.4Mt/yr
Co-CEOs	Pietro & Michele Buzzi
2015 Revenue	US$2.5bn

Buzzi Unicem was first founded as Fratelli Buzzi Cementi by Pietro and Antonio Buzzi in 1907. Production began at Trino, Vercelli in the same year. In 1923 a second plant was put into operation. After various upgrades at both plants, the second plant was moved and enlarged to a third site.

The 1980s marked an uptick in the company's development, with expansion into foreign markets. It entered a joint venture in Alamo Cement, Texas, USA in 1979, completely renovating the plant to dry process by 1981. Buzzi acquired major Italian players in 1979 and expanded to Mexico in 1981 with a large stake in Cementos Moctezuma. It acquired several other Italian firms in the 1980s and 1990s before taking on the assets of Unicem in 1997.

In the early 2000s the newly-renamed Buzzi Unicem entered into a partnership with Germany's Dyckerhoff, eventually raising its stake in the company to 100% in 2006. This brought it assets in Dyckerhoff's native Germany, as well as Luxembourg, Russia, the Czech Republic, Poland, Ukraine and further US assets.

Today Buzzi Unicem has eight integrated cement plants in the US, six in Italy, five in Germany, two in Russia and Ukraine plus one in each of Luxembourg, Poland and the Czech Republic. For the above it states a capacity of 37.4Mt/yr from its integrated and grinding plants in its 2015 Annual Report. This does not include Buzzi Unicem's 50% stake in Cementos Moctezuma (6.3Mt/yr across three integrated sites), its 25% stake in Slovenia's Salonit Anhovo or its 35% stakes in Société des Ciments de Hadjar Soud and Société des Ciments de Sour El Ghozlane in Algeria.

Financial situation

Buzzi Unicem's cement sales grew by 3% year-on-year to 5Mt in the first quarter of 2016 from 4.9Mt in the same period in 2015. Overall net sales rose by 5% to Euro540m from Euro513m. Its earnings before interest, tax, depreciation and amortisation (EBITDA) rose by 87% to Euro50.8m from Euro27.2m. It attributed the increase in sales to a strong performance in the US where cement sales grew by 16.3% in the quarter. Elsewhere cement sales fell in Russia and Ukraine.

This improved performance was broadly in line with the group's 2015 performance. It reported a 6.2% improvement in revenue year-on-year to Euro2.51bn, as clinker and cement sales increased by 1.7% to 25.6Mt and 25.1Mt respectively.

Buzzi Unicem attributed the improved performance to the end of 2015, despite a poor first six months. Construction activity in the final quarter was bolstered by a dry and mild climate in Italy and central and eastern Europe, which allowed construction activity to remain at above average levels.

Going forward

Buzzi Unicem has an interesting spread of assets across a number of contrasting mature markets. Improvements in cement consumption are expected to continue in the US in 2016, which should bolster its position there. Germany too is expected to perform steadily. However, poor conditions in Russia and Ukraine, plus continued uncertainty at home could limit growth to the low single-digit percentage range in the short to medium term.

Italian producers under investigation

In November 2015 Italy's antitrust authority opened an investigation into four cement companies - Buzzi Unicem, Cementir Italia, Industria Cementi Giovanni Rossi and Holcim Italia - for alleged price fixing.

At the time Buzzi Unicem said that it was confident that it would be able to demonstrate during the investigation that it had always acted in compliance with the law.

Maryam Tabe Bordbar, Isfahan University, Iran

Participation wins prizes for cement producers

There is a wide range of general and niche conferences and exhibitions catering to companies and suppliers in the cement sector. While these can often be very interesting and great fun for those attending, it can also be difficult to assess the tangible financial benefits for the individual companies that participate. Maryam Tabe Bordbar offers her perspective...

Increased competition, competitive pressures and a lack of organisational funds could affect the growth of any business. As a result, marketing performance measurement (MPM) has become a major aspect of marketing operations. Evaluation and control of such operations are determined by tracking their performance. This includes detection of problems and potential threats by implementing the most effective marketing strategies. One of the most important marketing practices is exhibitions, at which companies promote to either consumers or other businesses. Exhibitions enable businesses to reach a large target market all at once.

Consumer exhibitions involve a range of products and services from a number of different organisations that are being exhibited to everyone. Suppliers and visitors can exchange goods, services and information through communication and negotiation.

Achieving estimated return on investment from marketing programmes is often difficult

Specialised exhibitions, also known as trade shows, on the other hand, are generally intended to meet the needs of a particular group, industry, service or country, in which only personnel specific to that field are invited. Exhibiting at a trade show can give businesses, whether big or small, a strong platform for meeting new customers, improving researchers' knowledge and building a more established and reliable brand. This can help them to drive an exceptional approach to innovation, efficiency, return on investment and an increase in quality of their marketing performance.

Factors that affect trade show performance

Exhibition performance is affected by pre-show, at-show and post-show operations. A trade show requires a considerable amount of preparation such as setting a target, describing measurements of success, pre-show promotional activities and training booth staff beforehand.

At-show activities include selecting the size and location of the booth and reminding booth staff to concentrate on driving qualified traffic. Post-show activities include following up with potential customers, analysing and evaluating the trade show performances and keeping track of prospects. Completing all these three processes show the effectiveness of the trade show marketing programme.

MPM is one of the most important tools to evaluate the success of any existing system. Achieving measurable targets in return on investment and the need to continuously evaluate marketing performances can help companies develop the most effective and efficient marketing strategies.

Accordingly, achieving estimated return on investment from marketing programmes is often difficult. Therefore, marketing managers can take on an enormous amount of risk in order to facilitate business growth.

Left: The Hillhead Quarrying & Recycling Show took place in June 2016 in Buxton, UK.

Summary of research

Research was carried out among 80 Iranian cement company marketing managers, each of whom had participated in at least one cement industry exhibition. The research used a combination of financial, non-financial, tangible and intangible areas to evaluate the effectiveness of attending successful trade shows on companies' marketing performances. MPM metrics relating to customer satisfaction and customer loyalty, brand awareness, market share and financial aspects (including sales revenue, profit and cash flow) were considered. SPSS and AMOS were used to analyse the data.

The results showed that effective participation in specialised exhibitions has a net positive impact on the marketing performance of cement companies. This also positively affects the marketing performance, which leads to a desirable effect on customers and consumers, brand perception, market share and the company's financial performance.

Beumer Group

In discussion: Andre Tissen, Beumer Group

Beumer Group established its Center of Competence (CoC) for the cement industry in order to provide optimal systems and installations, becoming a full-range supplier to customers all around the world. The CoC is designed to optimise communication among Beumer's global teams. Andre Tissen, the director of this business segment since 2013, manages and coordinates this global competence centre...

***Global Cement (GC):* Could you tell us more about your tasks and the goals you have set for yourself?**

Andre Tissen (AT): As the head of the Center of Competence (CoC) for the cement business, a centre with global responsibility, I am responsible for developing this business segment. This includes optimising and expanding the range of products we offer, as well as supporting the individual group companies. Only by cooperating with our international group companies can we offer comprehensive support to our customers and expand into new markets.

Right: Andre Tissen is Director of the Center of Competence: Cement, at Beumer Group in Beckum, Germany.

> *"Automation is one of the topics that is very important to our European users to remain competitive, but it plays a smaller role in other regions..."*
>
> Andre Tissen, Beumer Group

***GC:* Can you give an example of how customers benefit from the CoC?**

AT: We have experts in the cement industry with extensive know-how who are located all over the world. The CoC helps us to bundle their knowledge and make it accessible to each individual group company. This will benefit customers in the US, as well as in the Philippines or Germany. The customer will have access to a competent expert 24 hours a day.

***GC:* You mentioned the continuous development of products. What are you working on right now?**

AT: We continue to optimise all of our machines and systems. One of the trends is that more and more clients want to receive their systems in a turnkey state. They want the systems to come from one single source. That means not only individual machines, but a combination of several machines, in which the individual components are perfectly compatible.

This means that automation will become increasingly important. Beumer is very well positioned, which is a big advantage for us. Our sorting and distribution systems have a high degree of automation and are successfully used in distribution centres worldwide. We are one of the global leaders in this business segment and experiences gained in one sector can often be transferred to another.

In addition, there are changing types of problems. For example, cement manufacturers are using more and more secondary fuels, such as tyres and household waste. Our systems constitute the appropriate conveying solutions for this kind of material.

***GC:* What does the Chinese market look like?**

AT: China remains an important market for us. It has calmed down a little though, because the clinker capacities in China are reaching their saturation limit. There are two major general contractors in China that are currently building about 70% of new clinker production lines around the world. Those companies sell their products to more than 20 countries, with a main focus on the Middle East, Africa and Asia. For several years now, both have relied on different Beumer Group systems such as apron conveyors, bucket elevators and palletisers.

***GC:* Where are the current growth markets for the cement industry?**

and pipe conveyors that can transport different types of bulk material over long distances, often through rough terrain.

***GC:* Can you tell us something about the competitive situation in the cement industry? Are there many global companies that you are competing with?**

AT: Our main competitors are predominantly from Germany and our neighbouring European countries. If we want to keep our leadership position, our systems and machines always have to be one generation ahead of our competitors. This is the standard we have set for ourselves. One of our unique selling points is definitely that Beumer is one of the few companies that covers the entire portfolio, from the quarry to the palletised and packaged cement bag.

***GC:* How do you stay up to date with the customer's needs in order to remain competitive in the future?**

AT: Our employees from our global branches keep their fingers on the industry pulse. They are permanently in touch with the customers. We also hold regular workshops with leading cement makers.

One of the advantages of being a global company is that we can react to regional differences. Automation is one of the topics that is very important to our European users to remain competitive but it plays a smaller role in other regions.

***GC:* How have the demands changed over the years?**

AT: More and more customers want a 'worry-free' package. This can be the deciding factor for keeping the competitive edge. Our customers expect us to assume the responsibility for the entire project and, upon completion, just 'hand over the key.' Under such conditions a comprehensive customer service becomes increasingly important. During machine downtimes, customers expect us to respond quickly. The service agreements are individually tailored to the customer's needs. In turn, the relationship with the customer becomes more and more important. I like to compare it to a good friendship that is based on mutual trust. We are not only a supplier, but also a partner. The two partners should be able to maintain an open dialogue.

***GC:* Is the purchase price more important to customers than the long-term costs?**

AT: The cement market is in a harsh situation at the moment due to the global financial crisis and many customers are basing their decisions on price. We are trying to counteract this trend by offering sustainable solutions to our customers, so that they can reduce their costs in the long term. We want to be able to offer our products at a better price while maintaining the same quality.

***GC:* Andre Tissen, thank you for your time.**

AT: You are very welcome!

Right: The Beumer stretch hood covers the full pallets with a thin film hood. The bags arrive safely at their destination and the product is protected against humidity and atmospheric influences.

Left: Beumer Group has added the rotating filling machine, Beumer fillpac, to its product portfolio and equipped it with sophisticated features.

AT: Core regions for us are currently Africa, the Middle East and south-east Asia. One interesting customer in Africa is Nigeria's Dangote Cement. It is a worthwhile investment here, even for small companies, because the demand for cement is continuously rising due to the persistent construction activity in many parts of Africa. The demand for large-scale plants is particularly high.

Besides this, the US market is becoming more and more interesting, because of its increasing stability. We still believe the Russian market shows great promise. We are expecting a strong demand as soon as the political situation has stabilised. Our Russian group company is represented in almost every region of Russia and the states of the former USSR. Despite the political events of the last months, we want to continue our successful cooperation with our Russian partners based on mutual trust.

GC: **What does the market situation look like in Germany?**

AT: There is a lot more going on now here in Germany than in previous years. Projects mostly concern modernisation of existing plants, with a strong emphasis on conveying systems for alternative fuels.

GC: **What are the most requested Beumer products in the cement industry at the moment?**

AT: These are our bucket elevators, filling systems, palletisers and the high capacity Beumer stretch hood® packaging system. We sell it to companies in all industries, but particularly to the building material industry, where it is used to package palletised bags filled with cement, mortar, limestone and gypsum.

The innovative Beumer fillpac® is in high demand too. It's an efficient and optimised filling technology. Our bulk loading heads are often used to load bulk materials quickly and without dust. They are designed with a double-wall system, separating the material inlet and the dedusting unit.

Our loading and palletising systems, for example, can automatically load bags of bulk material directly onto the trucks, a very efficient option that would otherwise require several workers. This is particularly interesting for emerging market nations, where the trans-shipment of bagged bulk goods is increasing and labour costs are on the rise. We offer our curved belt conveyors as troughed belt conveyors

Below: Pipe conveyors can transport different types of bulk material over long distances, often through rough terrain.

Konecranes

Xuan Thanh Cement deploys new cranes

Xuan Thanh Cement is deploying Konecranes' durable CXT lifting equipment enhanced with TRUCONNECT® remote monitoring technology to optimise the safety, efficiency and reliability of its new plant project in Ha Nam Province, Vietnam.

Xuan Thanh Cement recently announced plans to establish one of the world's largest cement plants, with capacity of 12,500t/day. Konecranes has responded to Xuan Thanh's needs by installing four 6-35t CXT installation and maintenance cranes.

The cranes, which serve key production technology in installations as high as 45m off the ground (more than 12 stories high) lift tools and machinery to the top of the plant.

Left: The Xuan Thanh Cement plant.

CXT wire rope hoists are staple lifting devices in maintenance tasks, production lines, engineering and processing plants and industrial warehouses and factories. Their strength, compact size, speed, reliability and safety make them indispensable in production facilities where time is money and space is limited.

The safety and reliability of bulk material handling and cement industry cranes such as the CXTs used by Xuan Thanh can be even further enhanced by new lifecycle care in real time technology. This represents one of the biggest advances in crane safety and cost-efficient management over the past decade. New remote digital monitoring and analytical technologies such as Konecranes' TRUCONNECT can look inside the performance of a crane or whole fleets of cranes to accurately predict the most suitable and timely maintenance for optimum service, as well as spot impending production risks and accident hazards.

The company's TRUCONNECT technology harnesses in a user-friendly way the power of the industrial internet, the heart of which is based on a series of machinery sensors that work together to gather and analyse data for specific purposes. By doing this, they can enable efficiencies that were unimaginable just a short time ago.

"With powerful but highly accessible technologies such as TRUCONNECT, crane maintenance is an entire generation ahead of the days of external inspections, laborious dismantling to find and fix problems - or simply fixing something when it fails," said John Bailey, General Manager, Service Development, Konecranes SE Asia Pacific. "With the accident liability that outdated practices entail - and the potential for expensive downtime that companies just can't afford, old approaches are just no longer accepted as safe and productive risk management in the world-class industries we serve."

Left: Xuan Thanh Cement's Manufacturing Vice Director Nguyen Quang Trung (right) and Konecranes' Vietnam Sales Manager Huynh Thanh Thien (left).

Left: TRUCONNECT provides accurate data on any device.

Ecocem Ltd

Ecocem Ireland opens new UK import terminal

Ecocem Ireland has opened a new bulk import terminal in Runcorn, UK, which will be supplied from its production facility in Dublin Port, Ireland.

Ecocem Ireland, a manufacturer of high-performance low-carbon cement, has increased its export capacity with the official opening of its first bulk import terminal, capitalising on the booming UK construction market.

Ecocem Ireland, a subsidiary of Irish company Ecocem Materials (Europe's largest independent manufacturer of high performance, low carbon cement), will supply its first bulk import facility in Runcorn on the Manchester-Liverpool Ship Canal, from its production facility in Dublin Port.

The import terminal required an investment of Euro2.5m, with a further Euro2.5m already committed to increase capacity due to the growing demands of the market.

Conor O'Riain, Managing Director of Ecocem Ireland commented, "We've invested in state-of-the-art equipment to demonstrate to the market that we're here for the long term and I'm delighted to say that the response from the market has been phenomenal. We've made commitments to sell more in the UK in our first year than our total domestic sales in 2016."

Ecocem says that its cement is the best available technology for minimising the environmental impact of concrete, while maximising its technical performance. This technology is used widely in Ireland and the UK in projects such as the Aviva Stadium in Dublin and the Shard in London.

Domestic cement production in the UK has traditionally not been sufficient to cope with domestic demand. The shortfall is covered by imports from around Europe and by using alternative locally available materials. Two of the most prominent materials are fly ash, a by-product of the burning of coal, and ground granulated blast furnace slag (GGBS) - the technology used by Ecocem.

As the UK seeks to reduce its carbon footprint, coal fired power stations are either being shut down

"We will sell more in the UK in our first year than our total domestic (Irish) sales in 2016."

Conor O'Riain, Ecocem Ireland

Right: Ecocem's new import terminal at Runcorn, near Manchester, UK.

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or are switching to biomass fuel. The challenges facing the UK steel Industry have been well publicised and have resulted in the closure of some factories and a sharp reduction in output from others. These two factors have resulted in shortages in the supply of alternative binders to the concrete industry, increasing costs and lowering performance.

The UK concrete industry has long appreciated the technical superiority of using alternatives such as GGBS and Ecocem is now in a very strong position to exploit this opportunity.

Ecocem has already started construction on another import facility in Sheerness, Kent, giving access to the lucrative London and South East markets to further develop its presence in the UK. Andrew Martin, Group Land and Property Directory of Peel Ports, commented, "We are delighted to be working with the Ecocem team to enable and support its entry into the UK market. We have been able to provide a multi-site solution that will accelerate the delivery of product as close as possible to the areas of consumption. We wish Conor and his team the best of success for the future."

The UK has long appreciated the technical superiority of using alternatives such as GGBS...

This is part of the overall Ecocem Materials Strategy to develop export markets from its existing facilities. For example, its Dutch subsidiary, Orcem, recently completed an import terminal in Sweden and began exporting in February 2016.

The demand for low carbon materials in Europe has never been stronger, reinforced by the historic international agreements at the recent COP 21 conference. Ecocem's ability to deliver a reduction of over 70% in the carbon footprint of concrete, the world's most popular building material, means the future is bright for the Irish firm.

Below: Ecocem will shortly have two import terminals in the UK.

Schaeffler Australia

Vibration monitoring saves big money in bearing replacement for Sunstate Cement

A vibration monitoring technology from Schaeffler Australia, which can predict and avoid costly ball mill breakdowns and maintenance shutdowns, has recently demonstrated its worth at the Australian cement producer Sunstate Cement. Here the company describes what led to the installation and the benefits to the company...

Sunstate Cement is an Australian-owned company that operates a 1.5Mt/yr cement grinding plant in Brisbane, Queensland, Australia. It supplies a range of general purpose and specialty cements to Queensland and northern New South Wales. Sunstate's three ball mills each has a production capacity of 60-100t/hr.

Challenge for Schaeffler

Sunstate Cement had performed a visual inspection of the Ball Mill No 1 trunnion drive end bearing. It found that the bearing was in a reasonable condition after 28 years of service and decided to extend the service life by rotating the outer ring by 180°, a common practice for this type of application.

After this rotation, Schaeffler Australia's technicians were asked to provide condition monitoring of the bearing, in order to provide Sunstate with assurance that the bearing was fit for purpose. Due to the unpredictable operating times and despite the slow speed of the mill the customer was considering the collection of vibration data.

Schaeffler solution

Schaeffler recommended a temporary solution, consisting of two FAG SmartCheck online systems (one axial, one radial) and a remote wireless network system for communication monitoring and diagnostics from the Schaeffler Online Centre in Sydney. The operating parameters that were monitored via high-resolution piezo sensors and the remote wireless network system included: **1.** Bearing temperature; **2.** Bearing vibration; **3.** Fixed speed; **4.** Bearing components. The Diagnostic methods included: **1.** Time signal; **2.** Envelope curve; **3.** Speed and frequency monitoring; **4.** Spectrum and trend analysis.

The FAG SmartCheck units were configured to suit slow-speed bearings and set up to only collect data when the mill was operating, to ensure that only relevant data was retained. This temporary solution proposed by Schaeffler was accepted by the customer for a period of one month. After this period, a machine condition report was provided by Schaeffler technicians. It confirmed that the trunnion bearing was fit for service.

By implementing the temporary FAG SmartCheck monitoring solution, Schaeffler was able to promptly supply a cost-effective monitoring system to assess the condition of the trunnion drive end bearing for continued service. The FAG SmartCheck provided high quality vibration data at slow speeds.

Subsequently, Schaeffler condition monitoring technicians further analysed the data and made recommendations to the customer for continuation of service for the trunnion bearing. The benefit and value to Sunstate Cement was that it obtained assurance that the bearing was suited for further operation, which meant a considerably more cost-intensive exchange could be avoided.

The cost of a new trunnion drive end bearing exceeds US$111,000, while average downtime cost is US$1660-3700/hr. The average downtime for a bearing replacement is 3-5 days (a minimum of 72 hours) at a minimum cost of US$120,000. This means that the cost savings of not replacing the trunnion drive end bearing were in excess of US$231,000.

FAG SmartCheck to FAG ProCheck

Due to the success of the temporary FAG SmartCheck installation and the permanent FAG ProCheck system used on Sunstate's two other ball mills, the company subsequently decided to equip Ball Mill No. 1 with a permanent FAG ProCheck monitoring system. This now monitors the remaining life of its bearing with Schaeffler's online monitoring services.

Left: Ball Mill No. 1 at Sunstate Cement, Brisbane, Australia.

P Lakshmanan & K Ranjith, Vedanta Ltd

Use of copper slag in cement and concrete

Authors from Sterlite Copper (a unit of Vedanta Ltd) describe the production of copper slag and its use in cement and concrete applications.

Sterlite Copper operates a 0.4Mt/yr custom copper smelter, a refinery and copper rod plant in Thoothukudi, Tamilnadu, India. Other facilities at the plant include a 1.2Mt/yr sulphuric acid plant and a 0.23Mt/yr phosphoric acid plant, as well as a 160MW coal-fired power plant. Copper is produced via the pyro-metallurgical extraction process from copper concentrate, which contains around 30-35% of copper, iron and sulphur, along with around 12% silica and 5% calcium.

During the smelting process, the iron combines chemically with silica present in flux materials at 1200°C to form iron silicate, which is also known as copper slag. The copper slag generated is quenched with jets of water to produce granulated copper slag. The quality-driven manufacturing process aimed at producing high grade copper at the Sterlite Copper plant ensures that the copper slag is produced on a consistent basis throughout the year. The granulated copper slag produced is free from any deleterious substances. The physical and chemical characteristics of copper slag are shown in Table 1.

Right - Table 1: Physical and chemical properties of Sterlite Copper's copper slag.

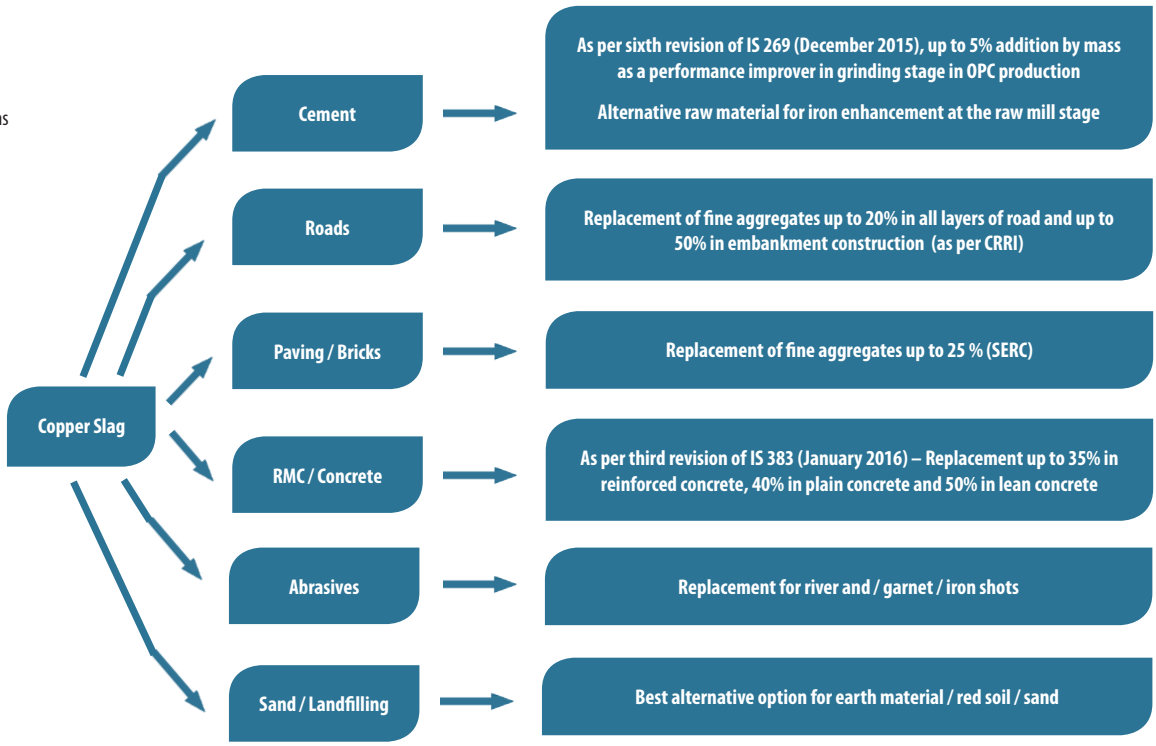
Property	Value	Unit
Hardness	6.5 - 7.0	Moh
Bulk density	2.00 - 2.23	g/cm^3
pH	6.6 - 7.2	N/A
Total H_2O (@ 105°C)	<5	%
Fe_2O_3	55 - 60	%
SiO_2	27 - 33	%
Al_2O_3	< 6	%
CaO	1 - 3	%

Applications of copper slag

Copper slag has very similar physical properties to conventional sand, making it suitable as a replacement in a range of applications, including cement manufacturing, cement concrete applications, bricks and paving manufacturing, landfilling and abrasive applications.

Cement Manufacturing: The sixth revision of the Indian Standard IS 269, released in December 2015, recommends the use of copper slag as a performance improver up to 5% by mass in OPC manufacture.

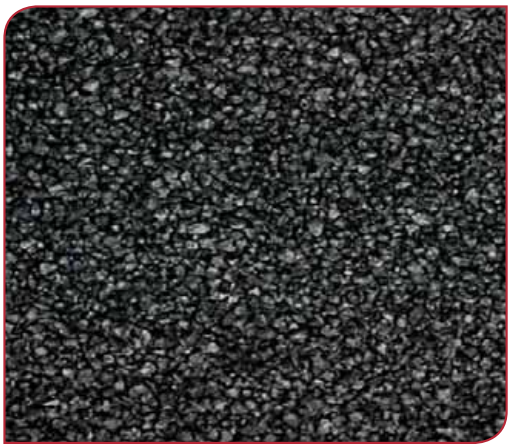
Right - Figure 1: Applications of copper slag.



The intrinsic presence of iron in copper slag complements the cement manufacturing process as an alternative to iron ore for iron enrichment at the raw mill stage and as a performance improver in the grinding stage.

Concrete: As per the third revisions of the Indian Standards IS 383 published in January 2016, copper slag can be used as a partial replacement for natural fine aggregates to an extent of 35% in reinforced concrete, up to 40% in plain concrete and 50% in lean concrete. The concrete produced with copper slag was tested by premium research institutes in India to prove the durability of the concrete produced. Lower permeability, resistance to chloride ion penetration, resistance to sulphate attack, lower hydraulic conductivity and higher compressive and flexural strengths are an added advantage over conventional concrete mixtures.

Land reclamation, embankment and abrasive blasting: Copper slag can be used as a 100% replacement for soils/earth materials in embankment construction. It is also used in abrasive blasting applications worldwide.



Left: Copper slag can be used in cement and concrete applications.

Conclusion

Copper slag is an eco-friendly material that can help save natural resources, including river sand and virgin raw materials won from quarries, which are indiscriminately exploited for infrastructure development in rapidly-developing nations.

The use of industrial by-products like copper slag not only has a significant impact on reducing infrastructure costs but also helps to develop a promising industrial ecology for the very sustenance of industries.

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Mark Stevenson, Hycontrol Ltd

Overcoming the challenges of blocked chute detection in quarrying and mining applications

Nuclear-based technology has long been thought the only blockage detection technology tough enough to withstand harsh mining and quarry environments. However, its radioactive nature means it is far from ideal. Here, level measurement expert Hycontrol outline a safer, modern alternative.

It is well recognised that transporting irregular-shaped bulk solid materials over long or short distances presents a number of operational challenges. Primary crusher crash boxes, conveyors, transfer lines, inlet/outlet chutes and inlet hoppers can all be prone to blocking, bridging or jamming, resulting in severe site problems, including lost production, damaged plant, lost material and extended (expensive) downtime. Early and reliable detection of imminent blockages in chutes before they reach a critical level is therefore of major importance.

Nucleonics

Traditional optical methods for detecting blockages, such as proximity through-beam sensors, cannot cope with the hostile environments encountered in these applications, where the extreme dust and high vibration culminate in repeated failures. Sensitive optics become damaged or coated in dust.

As a result, nucleonic devices have historically been considered the only reliable form of instrumentation capable of providing effective blocked chute detection in such demanding conditions.

Although nucleonics provides a technically-competent technology, it requires a radiation source such as Caesium 137 or Cobalt 60 in order to detect the presence of material in the hopper. The radioactive source must be specially shielded so that radiation is only directed through the hopper wall towards the product. Levels of radiation detected on the opposite side of the hopper are then used to determine whether there is a blockage.

Such devices are very expensive to install and, although considered relatively safe to operate, there is still concern about safety aspects and the long-term environmental impact. Controls on the use of these radioactive devices are extremely strict and extensive training is required to operate them. They need initial licensing and also have to be periodically verified, either by the manufacturer or an authorised external authority.

Microwave - The safe alternative

Hycontrol's new generation of microwave switches is proving to be an extremely reliable, robust and cost effective alternative to nucleonics, offering operators a 100% safe solution for blocked chute detection. This range of microwave level switches provides a simple non-contact, non-intrusive option suitable for many applications.

A typical installation comprises a transmitter and a receiver mounted facing one another on either side of the chute. The transmitter emits a continuous, low-power microwave beam at 24GHz to the receiver. An output relay is energised or de-energised when the beam is obstructed by the material that is being monitored. The switch trigger point is determined by the amount of microwave energy received and can therefore be adjusted to cater for different products and applications.

Right: Traditional radiation-based solutions have several cost and environmental downsides.

Left: Hycontrol microwave blockage detection system fitted to a chute.

As microwaves easily penetrate any surface contaminants it makes the switches ideal for applications where there can be high build-up of material on the inner surfaces of the chutes or vessel walls. This also means the switch technology is immune to problems with airborne contaminants such as powders or dust, as found in cement industry applications.

Microwave power levels are well below any required industry standards. The device therefore requires no special procedures for use. A wide range of flanges and connections make this range easy to fit to new or existing installations, utilising original process connections if required.

A key advantage of this latest generation microwave technology is its ability to effectively see through low-dielectric materials such as refractory bricks, ceramics, plastics and polymers. This means that low-cost 'sacrificial' windows can easily be fitted into the sides of a vessel or container, keeping the process closed and causing no disruption to material flow. The probes can then be mounted at some distance from the application, well away from damaging vibration and abrasion. The switch is adjusted so that the beam passes unaffected through the windows and falling product, only being triggered if the material being detected builds up and permanently breaks the microwave beam. If the windows suffer any physical damage or wear they can simply be replaced, leaving the switch intact.

The straightforward cost comparisons alone give microwave technology a favourable five- to 10-fold advantage, but additional costs of ownership for the nucleonics system have to factor in the added mandatory site security, strict operator training, provisions for checks from the authorities and annual licensing fees. The nuclear source will degrade over time and its disposal must be carefully controlled, all of which add further to the cost of ownership.

Detecting blockages in crushers

Primary crusher crash boxes at quarries are a vital part of the crushing process. It is essential that adequate warning is given of any potential blockages before they result in costly plant downtime. However given the ferocity of the environment where huge rocks are being crushed, peripheral equipment is constantly being subjected to extreme vibration, impact damage and abrasion.

To overcome these problems in one such recent application, Hycontrol mounted the microwave switch components up from the floor beneath the crusher head, 200mm back from the walls to prevent the units being shaken to pieces by the intense vibration.

A 60mm window made in each side of the crash box allows the microwave beam to pass from one side of the box to the other. In the 'un-switched' state the narrow beam from the transmitter is detected by the receiver. If the path of the beam is then permanently interrupted by a build-up of material in the crash box, the internal relay is triggered, initiating an alarm.

Maintaining critical measurements in harsh environments

Given the harsh environment that blocked chute switches and other level measuring equipment is expected to work in, regular structured and preventative maintenance is essential. Unfortunately all too often only cursory visual maintenance is carried out on critical equipment, exposing sites to potential safety hazards as well as premature and costly breakdowns.

All critical level components should be independently tested and calibrated on a regular basis. A well-designed level system should take this testing requirement into consideration so that maintenance work can be carried out effectively and safely. If the tell-tale signs of possible problems are uncovered during servicing then the root cause should be investigated and rectified.

Choosing the correct level equipment and ensuring it is professionally installed in the correct location is vital for the long term reliability of quarrying and mining sites. It is clear that microwave technology offers a reliable and cost-effective alternative to aging nucleonic systems. A structured maintenance programme is essential to prevent unwanted and costly breakdowns, ensuring that new equipment continues to provide optimum performance.

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US: HGH Infrafred Systems acquires Electro Optical Industries

HGH Infrared Systems, the American subsidiary of HGH Systemes Infrarouges (HGH), based in Boston, Massachusetts, has acquired Electro Optical Industries (EOI), based in Santa Barbara, California. The new entity will be named Electro Optical Industries Inc.

EOI, a pioneer of electro-optical test instruments, has been a provider of infrared, visible and ultra violet testing and calibration equipment since 1964.

Commenting on the transaction, Thierry Campos, President of the newly formed Electro Optical Industries Inc said, "This merger will greatly enhance our development and manufacturing capabilities in the US. It will also significantly extend our product line and service offerings to the benefit of our customers worldwide. We are very excited by this historic move, which will add to our rapid expansion and will position our group as a world leader in infrared instruments and wide area surveillance systems."

India: FLSmidth wins plant order in Tamil Nadu

FLSmidth has signed a contract with Larsen & Toubro Limited for engineering, procurement and supply of equipment for a complete cement production line with a capacity of 3000t/day. The plant will be located in Ariyalur, approximately 300km south of Chennai in the Indian state of Tamil Nadu. The end client of the project is Tamil Nadu Cement Corporation Limited (TANCEM), a wholly owned undertaking of the Government of Tamil Nadu, with whom Larsen & Toubro Limited has an EPC contract. The order will be delivered over the next 16 months.

The order includes a complete range of equipment from crushing to the packing plant: ATOX® 35.0 vertical mill for raw grinding, ATOX® 20.0 vertical mill for coal grinding, Pyro Processing System with low-NO_x ILC calciner, FLSmidth Cross-Bar™ CB10 x 40 cooler and a UMS 5.0 x 15.0 ball mill for cement grinding. FLSmidth's supply also includes equipment from product companies of FLSmidth, such as planetary gear units for vertical mills from FLSmidth MAAG Gear, bag filters and an electrostatic precipitator from FLSmidth Airtech, packing plant from FLSmidth Ventomatic, a control system and plant automation from FLSmidth Automation and weighing and metering systems from FLSmidth Pfister.

Africa: Estanda supplies components to grinding line

Estanda has overseen the assembly of different components supplied to a cement grinding line in Africa, for a multinational company. Estanda had already completed work at the same plant.

The assembly and commissioning of the installation was focused on a new inlet feed chute system with new wear-resistant components and headwall liners inside the ball cement mill. With these refurbishments, the cement company has improved the air ventilation and the filling level of the mill, achieving greater uniformity in the milling process.

Russia: Mondi wins PART Award 2016

Mondi Industrial Bags has received the PART Award for the HYBRIDPRO bag at the Russian International Exhibition for the Packaging Industry, RosUpack. Mondi won for its latest innovation, the HYBRIDPRO bag. A jury consisting of special interest magazine editors, university professors and the General Director of the Central Research Institute evaluated all entries.

With HYBRIDPRO , a bag that offers high-level weather protection and significantly extends shelf life of its contents, Mondi Industrial Bags combines the best of two worlds – paper and PE. It is particularly suitable for building materials, including gypsum and cement, as well as many other moisture-sensitive products.

The HYBRIDPRO bag has an inner ply made from 120g/m^2 Mondi Advantage ONE sack kraft paper and the outer ply is a 40µm-thick layer of high-density polyethylene (HDPE). The HDPE forms a protective layer on the outside of the paper, unlike other bags that combine paper and plastic.

Italy: Turboden wins COGEN Award

Turboden has been awarded the COGEN Europe Recognition Award 2016 for its geothermal cogeneration plants in the Technology and Innovation category.

Paolo Bertuzzi, Managing Director and CEO, collected the award from the COGEN Europe Executive Committee during the official ceremony in Milan and declared, "Turboden has always believed in cogeneration and has always distinguished itself in providing innovative, highly efficient and winning solutions. Since 1980, our company has supplied more than 320 organic Rankine cycle plants in 34 countries, about 80% of which are in biomass and waste to energy applications, reaching more than 8.6 million hours of successful operations."

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How can we cope with increasing urbanisation while being sustainable...?

Koen Coppenholle Chief Executive of CEMBUREAU, the European Cement Association

European citizens, particularly those in major cities, are facing an ever growing number of urban challenges. The increase in intra-EU migration, with people moving from rural areas to urban environments, and from one Member State to another where the opportunities for employment are greater, is putting a great deal of pressure on both housing and infrastructure. Responsible, affordable, energy efficient, comfortable: society is evolving and construction must keep up the pace to ensure we are meeting people's needs.

Taking a quick overview of recently published figures shows that we need to act now. According to Habitat for Humanity's 2015 Housing Review, the cost of housing places a heavy burden on over 10% of European households. Of this 10%, more than 39% of families are also at risk of poverty. This is further backed by Eurostat figures which note that nearly 10% of EU citizens live in severe 'material deprivation.' In new Member States this figure is almost double (18.6%) and it seems that the situation is not improving.

The result of this lack of affordable housing is that an ever increasing number of people end up in overcrowded living conditions. Across the EU 28, 17% of the population lives in overcrowded housing, ranging from 1.6% in Belgium to 51.6% in Romania (Figures from 2012). More and more young adults (18-34) struggle to move out into a home of their own: 55% of young adults in Portugal still live with their parents, with this figure rising to 74% in Slovenia.

The issue of affordability does not just stop here. Other household expenditure, particularly gas and electricity bills, can also take a serious bite out of a family's income. Much of current legislation focuses on the environmental benefits of becoming more energy efficient. But surely an equally important plus to building an energy efficient home is the fact that it will reduce the financial burden on families! After all, in many Member States peoples' gas and electricity bills have risen due to a combination of wholesale prices and increases in taxes and subsidies. This is having a significant impact on people. Back in 2013, EU figures highlighted that, on average, 11% of people across the EU struggled to heat their homes during cold winters months, ranging from 6.5% in the UK to nearly 50% in Bulgaria.

So what is the solution? A simplistic view would be to build more energy-efficient homes. The challenge is much greater than this. Yes, we do need more housing - but how should it be built, and who is going to pay for it? Will it be sustainable enough, while meeting the needs of modern society? Who should take the lead, and who needs to be involved? All stakeholders need to work together on this, which is why The Concrete Initiative is dedicating the Concrete Dialogue 2016 to this issue in November 2016.

According to the information published on 19 May by the European Commission, emissions of greenhouse gases from installations participating in the EU Emissions Trading System (EU ETS) are estimated to have decreased by 0.4% in 2015.

The surplus of emission allowances that has built up in the system since 2009 is said to have been considerably reduced as a result of 'back-loading', which postponed the auctioning of 300 million allowances from 2015 to 2019-2020, combined with stable emissions. The cement industry has recorded a 29% decrease in allocations between 2012 and 2014.

EU Climate Action and Energy Commissioner Miguel Arias Canete said, "The good news is that the EU ETS emissions dropped slightly last year, which confirms the decreasing trend over the last five years." Thanks to these allowances, 2015 marks the first year in which the surplus shrank considerably on the European CO_2 market.

The Market Stability Reserve will start operating in January 2019 and will address the current surplus of allowances. The Commission is expected to publish the first surplus indicator in May 2017 and this will be used to determine how many allowances would be fed into the reserve annually.

France/Switzerland: Lafarge payment to IS - Was it an 'emergency'?

The French newspaper Le Monde has reported that Lafarge's Syrian subsidiary paid money to Islamic State (IS) militants in order to keep its Jalabiya cement plant in operation in 2013 and 2014. The paper said that the plant was kept in operation until September 2014 as the result of 'agreements with local armed groups, including the Islamic State.' It added, that Lafarge 'indirectly financed the jihadist organisation.'

A statement from Lafarge-Holcim, issued on 21 June 2015 did not directly address Le Monde's accusations. It stated that the company, as Lafarge, was under control of the plant in Jalabiya between 2010 and September 2014 and that the safety of its employees had always been its first priority. Part of the statement read, "Once the conflict reached the area of the plant, the first priority for Lafarge was the safety and security of the employees, while planning for the eventual closure of the plant. In September 2014, Lafarge stopped operating the Jalabiya plant. After that, all employees were evacuated, put on paid leave and were no longer allowed to access the plant. In December 2015, given the evolution of the situation in Syria, the decision was taken to terminate all employee contracts and, where possible, transfer employees to other parts of the group."

If the company is found to have financed any terrorist organisation, the company could be punished by law. However, the situation is complicated by the fact that Lafarge has since merged with Switzerland's Holcim, becoming part of LafargeHolcim in 2015. This means that any case could be brought in France or Switzerland. On top of this, the state of emergency, which was in place in the region surrounding the plant at the time of the alleged payments, may provide mitigating circumstances. This means that charges might not be brought in either country.

Emmanuel Daoud, a specialist in international law, said, "The facts revealed by the newspaper Le Monde suggest that the company Lafarge deliberately paid, although it still must be proved, fees at checkpoints controlled by IS and even, perhaps, made other payments in order to use or operate notorious plant to maintain its positions in Syria and, most likely, to guarantee the safety of its employees and its activities."

"Did the Syrian branch know about it? The answer is — yes. Did the the parent company in Paris, France know about it? The answer to this question seems to be positive, too. If there is a preliminary investigation or criminal proceedings, one will need to find out whether it was done on purpose and, if so, whether the court decides that the state of emergency, in which they were, will allow to remove the charges over financing of a terrorist organisation. In my opinion, this is how it looks from legal and criminal perspectives."

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Switzerland: LafargeHolcim to sell assets in nine more countries

LafargeHolcim plans to sell assets in nine additional countries as part of its post-merger divestment programme, according to the Financial Times. The announcement follows a portfolio review. However, LafargeHolcim did not name the locations of the proposed sales.

In March 2016 the group released details of sales in South Korea and Saudi Arabia and plans to merge its operations in Morocco. This followed plans to generate Euro3.16bn from divestments in 2016.

France: Kerneos to be sold by Astorg

Private equity firm Astorg is to sell calcium aluminate cement producer Kerneos, according to Reuters' sources. Investment bank Lazard has been appointed to work on the sale. The sale could generate around Euro1bn. None of the parties commented on the story.

Kerneos started as a joint venture between subsidiaries of Lone Star Industries and Lafarge Coppée in 1970. It was purchased by Astorg from building materials business Materis in 2014 for Euro600m.

Greece: European Court of Justice deems former Lafarge layoffs 'acceptable'

The European Court of Justice (ECJ) has ruled that a Greek law that requests employers to receive approval by the Labour ministry before making bulk redundancies is incompatible with European Union law. The judgement was made in relation to the layoff of a group of workers at the Halkida cement plant when Lafarge purchased the plant from AGET Heracles in 2013. The Labour ministry blocked the request, citing conditions in the labour market, the financial situation of the company and the interest of the national economy. Lafarge then appealed to the Council of State, which then referred the case to the ECJ.

Romania: Holcim Romania extends its range of bagged cements

Holcim Romania has extended its range of bagged cements to better address the needs of the local market. Its new bagged range comprises: Structo Plus 40kg, Structo Plus 20kg, Structo 40kg, Extra Dur 52 40kg and Tenco 40kg. They have been chosen to meet customer demands for aesthetics, shorter setting time, lower costs, higher strength and durability.

"The new range of cement bags is the best proof of how Holcim Romania understands and contributes for the development of the construction sector, by implementing and offering innovation and sustainability in the market through tailored and cost-effective solutions," said Sofiane Benmaghnia, CEO of Holcim Romania.

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Belgium: European cement production grew by 0.9% in 2015 says Cembureau

European cement production grew by 0.9% year-on-year to 248Mt in 2015, according to newly published data in the 2015 Activity Report from the European Cement Association (Cembureau).

Individual European countries recorded a mixed performance. Cement production in Spain grew by 3.3% in 2015. However, in Italy production fell by 3.4% and in France it fell by 5%. Cembureau reported strong performance from its members in Eastern Europe, notably in the Czech Republic, Hungary and Romania. In the European Union (EU28) the association reported a 3.7% increase in cement production to 172Mt from 165.8Mt. However, Cembureau reinforced the facet that EU28 cement production remains 37.7% below the production levels recorded in 2007.

Cembureau data uses estimates for some countries where the data is unavailable including Germany, the UK and Poland. The association represents the national cement industry associations and cement companies of the European Union with the exception of Cyprus, Malta and Slovakia plus Norway, Switzerland and Turkey. Croatia and Serbia are associate members.

Russia: Eurocement targeting exports to the UK and Denmark

Eurocement Group has said that it is targeting exports of cement to Denmark and the UK. Company chief executive officer Mikhail Skorokhod said that 'contracts in Denmark and Britain are forthcoming' in an interview with PricewaterhouseCoopers that was recorded ahead of the St Petersburg International Economic Forum.

Exports by Eurocement to Finland and the Baltic states have been taking place since the end of 2015 with a gradual increase in sales volumes. In Finland the cement producer has a market share of 5%. Skorokhod added that the devaluation of the Russian Ruble has opened up export opportunities for the company. However, the company has not disclosed the volume of its exports, according to Interfax.

The overall volume of cement exports from Russia in January to April 2016 reached 230,000t with production of 13.6Mt, according to data from the Union of Cement Producers.

Germany: New MD for Refratechnik Cement

Stefan Puntke has become the managing director of Refratechnik Cement, replacing Wolfgang Tabbert. Puntke's previous role has been taken by Christian Meyre, effective from 1 June 2016. The announcement was made at the 14th REFRA-Kolloquium held on 31 May to 3 June 2016 in Berlin.

Tabbert has worked for the company for more than 30 years, five of them as sales manager and 13 years as managing director. He will continue to act as consultant for Refratechnik Cement for a period to ensure a smooth transfer of responsibilities.

Meyre holds management experience in the international cement industry, particularly in North America.

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Comment: Update on Russia

Eurocement owner Filaret Galchev was surprisingly candid on Russian television in June 2016 when asked why his company offloaded shares in LafargeHolcim in February 2016. He described the move as 'unexpected' and a reaction to the shares losing nearly 50% of their value in six months.

Eurocement ran a repurchase deal for the stake with Sberbank in late January 2016 before the bank sold it in early February 2016. Galchev's wallet wasn't the only casualty of LafargeHolcim's falling share price. Board chairman Wolfgang Reitzle announced his plans to resign from the company at about the same time. LafargeHolcim's share price has since rallied somewhat, although it remains well below the level it commanded in the summer of 2015 following the merger.

Back in Russia, Galchev also continued Eurocement's theme of predicting doom and gloom for the domestic cement industry. He forecast a further drop of up to 10% in local demand for cement. This is in line with previous comments Eurocement has made since mid-2015. Although on the plus side the steepness of the fall in demand may be softening at least.

Data from Russian Federal State Statistics Service (ROSSTAT) shows that cement production in Russia fell by 9% year-on-year to 62.1Mt in 2015 from 68.5Mt. This follows years of growth. Data for the first four months of 2016 seemed to show an acceleration of this trend with an 18% drop in production to 8.9Mt for the first three months of the year. However, figures for April 2016, show that production may be picking up somewhat. On the supply side, ROSSTAT doesn't release any figures on cement consumption but the Russian railways has reported that its cement volumes to consumers were down by 9.2% to 4.8Mt in the first quarter of 2016. This is a percentage drop close to what Galchev has been suggesting for 2016 as a whole.

The news from the multinationals supports this picture. LafargeHolcim reported weak construction markets in the first quarter of 2016 following sharp declines in 2015. HeidelbergCement recorded 'slight' decreases in its sales volumes in the period. It also noted a knock-on effect in Sweden due to lowering export deliveries to Russia.

All in all, it appears that the lower oil price is hammering the Russian economy and the local industry is battening down the hatches. However, international oil prices are slowly creeping up and the International Monetary Fund (IMF) has predicted lower decreases in its economic output in 2016.

Russia: Cement shortage in St Petersburg

St Petersburg is facing a market cement shortage of 40% due to a decrease in the volume of shipments by a number of producers. Local media has attributed the deficit to the failure of equipment at major suppliers, including Pikalevskaya Soda, Cesla and Eurocement Group. Concrete producers have been forced to shut their plants down due to the shortage. Local cement prices subsequently rose.

Hungary: Production to restart at Miskolc

Hejöcsabai Cement es Meszmu has released plans to restart production at its Miskolc plant. Production is expected to start between the end of 2016 and the first quarter of 2017. Up to 340 jobs are expected to be created as a result. The company has already received a government permit to resume its activities.

UK: David Brown and Santasalo merge to form David Brown Santasalo

Mechanical power transmission companies David Brown and Santasalo merged on 1 June 2016 to create David Brown Santasalo. Clyde Blowers Capital, an industrial investment firm based in Scotland, owns the business.

The merged company intends to serve markets in commodities, marine, defence, power, industrial and consumer end sectors. Its core business lies in gear engineering and power transmission products. The new company contains more than 1000 employees, seven major manufacturing plants and 23 service centres across six continents.

"David Brown Santasalo covers varied end markets including naval ships, minerals processing and the manufacture of a wide range of pulp and paper products. Across all these markets, our core differentiator is our fundamental capability to design and engineer gear systems for the world's most demanding applications," said Thomas Burley, Chief Executive Officer of David Brown Santasalo. He added that the company intends to focus on expanding its sales and service network, enhance its product offering and invest in its manufacturing base around the world.

Germany: Möllers opens new academy

Möllers Group has opened a new training academy at its headquarters in Beckum. The 1250m^2 facility cost Euro3m and took nine months to build. It started training operations in June 2016. The official opening of the site took place on 31 May 2016.

Romania: Holcim Romania improves in 2015

LafargeHolcim has reported that its Romanian subsidiary Holcim Romania had a turnover of Euro242.39m and net earnings of Euro28.2m for 2015, 76% higher than net earnings in 2014.

Crimea: Peninsula's only cement plant to get upgrade

JSC Bakhchysarai Factory Stroyindustriya, the only cement producer in Crimea, is implementing a modernisation programme. The company intends to change from the wet process to the semi-dry process, increasing its cement production capacity to 1.2Mt/yr, while considerably reducing the cost of production.

Sweden: N+P and HC Miljö sign contract

N+P has signed a five-year contract to supply HC Miljö, a subsidiary of HeidelbergCement, with Subcoal pellets. HC Miljö will supply Subcoal pellets to a number of cement kilns in northern Europe. The Subcoal will be used as an alternative fuel.

Subcoal will initially be supplied from N+P's production site Subcoal Production FRM in the Netherlands. The site uses the Subcoal process to convert various industrial wastes into an alternative fuel. The process is focused on using non-recyclable paper-plastic waste fractions, mainly sourced from the Netherlands, the UK and Germany.

UK: Axion Polymers introduces new fuels

Axion Polymers has added two new alternative fuels to its range of solid recovered fuel (SRF) products. Axfuel High CV Polychip Grades A and B are fully-processed and technically-separated fuels. Grade A has a net calorific value of 40kJ/g, similar to powdered petcoke. Grade B has a net calorific value of 26kJ/g with a greater mix of other materials such as wood and rubber. Both products are derived from end-of-life automotive and electrical waste resource streams.

Lithuania: Akmenes loss deepens

Akmenes Cementas made a Euro4.9m net loss for 2015, compared to a loss of just Euro0.9m in 2014. The company reported revenues of Euro55.4m, a 6.5% fall compared to 2014.

Despite the financial performance, Akmenes Cementas produced more cement in 2015 than in 2014. It sold 979,000t across the year, an 8% year-on-year increase. 513,000t of total sales were sent to Lithuania and 291,000t were sent to Russia. Akmenes expects to break even in 2016.

Above: The Akmenes Cement plant was visited by *Global Cement* in 2015.

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US: FTC clears acquisition of Italcementi by HeidelbergCement

HeidelbergCement and Italcementi have reached an agreement with the US Federal Trade Commission (FTC) to allow the company's merger to proceed on schedule. The FTC accepted the proposed divestment of operations in the US, primarily consisting of Italcementi's Martinsburg cement plant in West Virginia and up to 11 terminals on 17 June 2016. All competition approvals necessary for closing the Italcementi acquisition have now been obtained.

"We are very pleased with the positive decision of the Federal Trade Commission," said Bernd Scheifele, Chairman of the Managing Board of HeidelbergCement. "We are now on track to close the acquisition of the 45% stake in Italcementi which we are planning together with Italmobiliare for the beginning of July 2016."

The divestment process for the assets in US has already started and significant interest has already been recorded. Citi is mandated as sell side advisor for the disposal.

The planned full acquisition of Italcementi will proceed in two steps, following approval by the necessary competition bodies. HeidelbergCement will initially acquire a controlling stake of 45% from Italmobiliare. HeidelbergCement will then propose a public mandatory offer to the remaining shareholders for the acquisition of their shares in return for a cash payment. The exact timing of the mandatory offer will be released at a later date. HeidelbergCement expects the entire transaction to be completed in the second half of 2016.

Canada: Cement Association of Canada supports Ontario Climate Action Plan

The Cement Association of Canada (CAC) has congratulated the Ontario government for releasing its Climate Action Plan. The five-year plan was released on 8 June 2016. A key feature of the plan includes supporting a cap-and-trade CO_2 pricing scheme.

The CAC singled out that the plan would enable emissions-intensive trade-exposed (EITE) industries, like cement, to reduce their own reliance on coal. The plan has set aside US$30-45m to help EITE industries across Ontario move away from coal and develop the necessary supply chains so they can better utilise alternative low CO_2 fuels. Other aspects of the plan that the CAC liked included the plan's decision to establish a service standard for decisions on alternative fuel applications and the collaborative nature of the plan's consultation.

"Today, I'm happy with approaches that are laid out in the climate action plan which will help industries, like cement, reduce their greenhouse gases (GHG) emissions while remaining globally competitive. We look forward to continuing to work with the Ontario government on the next steps to ensure that Ontario achieves its GHG reduction targets," said Michael McSweeney, president and CEO of the CAC.

US: Prüftechnik opens new office

Germany's Prüftechnik has opened a new office in San Diego, California. The new location will support the company's product sales, tech support, training, consultation and machinery services. The opening of the new office follows the commencement of the firm's North American operations from Philadelphia in March 2016. Prüftechnik specialises in laser alignment systems and it is a provider for the maintenance of rotating equipment.

Mexico: Glow-in-the-dark cement patent

A scientist from Mexicos' Universidad Michoacana de San Nicolas de Hidalgo has patented glow-in-the-dark cement following nine years of research. José Carlos Rubio estimates that the product could remain active for around 100 years, emitting light absorbed from the sun for around 12 hours at a time.

Rubio made changes to the crystal structure of cement to make it less opaque, while incorporating a gel that absorbs and re-emits light. As the distribution of the gel can be controlled, it can be used to make patterns. It is thought that the product could be used to light highways without electricity, be used for signs and even illuminate buildings.

"It more or less works like glow stick technology," explains Rubio, speaking to the Fusion website. "However, we are applying it to something that can last longer and is of better quality. When a glow stick bar is broken, there's an internal chemical reaction. Instead of that, we use photoluminescence, which requires outside light."

Above: A glow-in-the-dark cycle path, a potential application of José Carlos Rubio's glow-in-the-dark cement mixture. **Source:** Investigación y Desarrollo.

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Canada: First clinker from new Exshaw kiln

Lafarge North America has produced its first clinker from its new Kiln 6 at its Exshaw cement plant in Alberta. The plant reached this milestone on 22 May 2016 and it plans to produce its 'first' cement in the autumn, according to the Rocky Mountain Outlook.

"What we achieved was a major milestone," said plant manager Jim Bachmann. "It is the accumulation of nine years of permitting and engineering and three years of construction and operation preparation activities, training and working with employees."

In November 2015 the plant shut down its Kiln 4 to meet local environmental regulations. The new kiln will emit less SO_2, NO_x and CO_2. The existing lines at Exshaw produce 2300t/day of clinker and the new production line will produce up to 4200t/day of clinker. Once the upgrade is completed, the plant will have a production capacity of 2.2Mt/yr of cement.

Brazil: SNIC says that Brazilian cement market will decrease by 12% in 2016

Jose Otavio Carneiro de Carvalho, president of the National Union of the Cement Industry (SNIC), estimates that the Brazilian domestic market will decrease by 12% in 2016, according to the Folha newspaper. SNIC data shows that cement sales fell by 11% year-on-year to 61Mt/yr for the June 2015 to May 2016 period from 69Mt in the previous year. So far in 2016 sales have fallen by 14% to 23Mt for the January to May 2016 period from 27Mt in the previous year. SNIC have suggested that demand will only resume from 2017 onwards and that companies may be holding back investment to ensure that they benefit from the expected upturn.

Brazil: Supremo loss reflects Brazilian woes

Supremo Cimentos, owned by Portugal's Semapa, saw turnover of US$19.1m in the first quarter of 2016, a 34% rise year-on-year compared to the first quarter of 2015. The company's earnings before interest, tax, depreciation and amortisation (EBITDA) came in at US$2.5m but the company saw a first quarter loss of US$1.9m. The negative result was influenced by the high value of the investment amortisation made in the expansion of Supremo's cement production capacity.

Parent company Semapa noted that the Brazilian economy continued to be strongly affected by political instability, tax adjustments and the process of impeaching President Dilma Rousseff, which began in May 2016.

At the end of the first quarter of 2016, the net debt of Supremo Cimentos reached US$141.8m, an increase of US$6.9m compared to 31 December 2015, influenced mainly by adverse exchange rate movement.

Argentina: May 2016 cement sales up

Cement plants in Argentina shipped 889,421t of cement in May 2016, including exports. This represents a 16.4% increase compared to April 2016 but an 11.2% fall year-on-year compared to May 2015.

Domestic shipments came to 881,663t, a rise of 16.5% over April 2015 and an 11.5% decrease compared to May 2015. The difference between production and consumption suggests 7758t of exports. There were no imports of cement into Argentina during May 2016.

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US: New manager for Ash Grove Midlothian plant

Michael A Gonzales has been appointed as plant manager of Ash Grove Cement's Midlothian plant in Texas. He started in the role on 1 June 2016.

Gonzales holds nearly 25 years of experience in the cement industry. He most recently managed the Evansville, Pennsylvania, Lehigh Hanson plant for six years. Prior to this he led three Cemex cement plants between 2002 and 2010. He also held a series of positions of increasing responsibility for Lafarge North America.

Gonzales has a Bachelor of Science in mechanical engineering from the United States Military Academy in West Point, New York, and served as a United States army officer from 1987 to 1992.

Bolivia: Police guard for cement

Cement has been despatched under police protection from Fancesa's Fábrica Nacional de Cemento plant near Sucre, Bolivia. The plant's general manager told El Mundo that 13 vehicles had left the plant with a police escort by 12:00 on 14 June 2016.

The plant is suffering from an indefinite strike by union-affiliated freight operators in protest against the reduction of the freight rate on cement from US$2.70/t to US$2.40/t. Normally the plant despatches 70,000bags/day of cement via 120-130 trucks.

Peru: Cement sales down in May

The Peruvian cement manufacturers association has stated that the cement market continues to show signs of recovery in May 2016. While production saw a slight decline, national and international shipments continue to grow.

During May 2016 cement production decreased by 0.2% compared to May 2015. Total dispatches and national dispatches grew by 1.9% and 1.4% respectively year-on-year.

Dominican Republic: Cement exports decline in 2015

Exports of cement from the Dominican Republic fell to 16.5% of domestic production in 2015 according to Adocem, the cement association for the Dominican Republic. This compares to a share of 27% in 2013 and 2014. The Association of Industries in the Dominican Republic has blamed the decline on trade restrictions by Haiti on a total of 23 products, including cement.

Domestic cement production grew by 3.2% year-on-year to 5.2Mt in 2015. This gives the country a capacity utilisation of 75%, given that it has a cement production capacity of 6.9Mt/yr. Total cement sales volumes grew by 6.2% in 2015 but they fell by 5.6% in value terms.

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Comment: All change in Sri Lanka?

When a small cement market sits just off the coast of one of the world's biggest producers, it's not a recipe for a lot of column inches. Sri Lanka's cement market is particularly small, ranked 128th out of 141 clinker producing nations according to the *Global Cement Top 100 Report 2016*, and is dwarfed by a very dominant neighbour in India. Therefore, when two stories about plant projects and divestments came in from Sri Lanka in one week in June 2016, our interest was suitably piqued - The original stories can be seen to the right.

The first story came from global giant LafargeHolcim, which announced the planned divestment of its 0.6Mt/yr integrated Holcim Lanka plant at Puttalam, its 1.0Mt/yr grinding plant in Galle and associated packing facilities. The second story came from South Korea's AFKO Group GMEX (AFKO), which has expressed strong intentions to reopen the Kankesanthurai plant in the north of the country.

LafargeHolcim stated that its move was part of its wider divestment strategy following the 2015 merger of Lafarge and Holcim. Considering that the company currently controls 1.6Mt/yr of Sri Lanka's 3.6Mt/yr cement capacity (around 44%) the potential ramifications are big - A huge domestic position is up for grabs.

Local newspaper The Nation stated that three locally-owned groups were already circling the assets as of early June 2016, but it's still early days. A major player could easily step in to grab some high-quality assets in this rapidly-growing market, which grew by 4.5% in 2014 and is investing strongly in infrastructure. With its recent history of major purchases, CRH could certainly be interested. Larger Indian and Pakistani players, stifled by continued overcapacity at home, could also be in line to snap up the assets.

Up in the north, the AFKO project promises to be very large. It could also have major implications for the shape of the Sri Lankan cement sector but there is a lot of work to be done. The Kankesanthurai plant produced its last cement in 1991 as the civil war raged in the north of Sri Lanka. It had a capacity of just 0.12Mt/yr at that time. However, AFKO chairman Keun Young Lee stated that the company was, "Ready to enter with US$450m as a start." This is far more than the amount needed to re-start a small, presumably wet process cement plant. The amount strongly suggests an entire new, state-of-the-art facility, but no capacity has yet been announced.

AFKO sounds serious but other projects have previously run into trouble on the island. A restart at Kankesanthurai has previously been mooted twice, once by a domestic player and once by a company from the UAE. Meanwhile Thatta Cement has suspended construction of a US$15m, 0.1Mt/yr grinding plant at Rajapaksa, Hambantota. It will be very interesting to see how the AFKO project develops over the coming months as will seeing how the eventual price-tag for the project compares with the revenue that LafargeHolcim raises from its own divestment.

While Sri Lanka remains a small player, its cement sector is very similar to that of India when we take populations into account. Both have room for expansion. India has 310Mt/yr (according to the *Global Cement Directory 2016*) but, with a population of over 1.25 billion, it has a per-capita capacity of around 250kg/capita. Sri Lanka, with 3.6Mt/yr of capacity and 20.2 million inhabitants, comes in at just under 200kg/capita. There is clearly room for growth in both of these figures and further projects could yet be on the horizon for Sri Lanka. If they play their cards right, AFKO and the successful bidder for the LafargeHolcim assets could be in a great position to benefit from the island's strong continued growth.

Government interest

The Industry and Commerce Ministry has since expressed its interest in buying LafargeHolcim's Sri Lankan assets. Government sources said that discussions were on-going within the administration as of 15 June 2016.

"The government is willing to negotiate to buy it at a reasonable price," said a spokesman of the ministry referring to the integrated plant at Puttalam. "This is the only integrated cement plant in Sri Lanka. The limestone quarry in Puttalam belongs to the Cement Corporation and it had been leased out to Holcim." He added that

Kazakhstan: China Gezhouba to invest in joint-venture

China Gezhouba has announced that it intends to invest US$178m in a joint-venture cement project with local partners.

India: Sarat Jain resigns from Jaiprakash Associates

Sarat Kumar Jain, vice chairman of Jaiprakash Associates, resigned from the group with immediate effect on 8 June 2016. Jain had been associated with the Jaypee Group for over 50 years. The firm said in a statement that the 78 year old had cited health reasons.

no final decision on the matter has been taken yet. The government also hopes that, if it successfully purchased the company, it could reduce the price of cement in the country. As of the end of June 2016 there are reported to be seven bidders, including companies from the UAE, Indonesia, Thailand, China and Sri Lanka.

Sri Lanka: LafargeHolcim to leave Sri Lanka

LafargeHolcim is exiting its cement business in Sri Lanka. A spokesperson said that the decision to sell its subsidiary Holcim Lanka was part of a larger global divestment strategy.

The company operates the country's only integrated cement plant at Puttalam, a cement grinding plant and a bagging plant.

Sri Lanka: AFKO Group GMEX to restart plant

South Korean conglomerate AFKO Group GMEX has expressed interest in reopening the Kankesanthurai cement plant located in the Northern Province of Sri Lanka, the country's Industry and Commerce Ministry has said.

"We are keen to partner in the Kankesanthurai Cement Project and are ready to enter with US$450m as a start. We shall also bring in all the necessary machinery and technology and can start from scratch. We only need Sri Lanka's land and labour," said AFKO Group GMEX chairman Keun Young Lee at a meeting with Industry and Commerce Minister Rishad Bathiudeen in Colombo. Lee also expressed interest in cement production elsewhere in Sri Lanka.

AFKO intends to start a feasibility study shortly. Ssangyong C&T is the favoured engineering company to start construction at the site.

Myanmar: Kyaukse plant to receive upgrade

The state-run No. 33 cement plant in Kyaukse, Mandalay will be upgraded to produce up to 5000t/day of cement in a partnership with Myanmar Conch Cement. The plant was established in 1983 and has been running under the Ministry of Industry with a capacity of 300t/day. The upgrade is expected to be finished in three months, according to Myanmar Business Today.

The agreement with Myanmar Conch Cement will give the government profit from 2.71% of production in the first year and from 5% in the following 19 years. "In profit sharing, the government owns its net profit without investment for production and staff payment. The partnership company will pay for it," said U Saw Aung, General Manager of Technology at the Development Department of the Ministry of Industry.

Domestic demand for cement in Myanmar is around 8Mt/yr with half of this figure currently imported from abroad.

India: All options considered at Mawmluh Cherra Cement

All options are being considered by the state government regarding a potential return to production at the Mawmluh Cherra Cement plant in Meghalaya, including handing the plant over to private investors. Chief minister Mukul Sangma refused to rule out the option when asked about the state owned cement plant, according to the Indian Telegraph.

"In the process of trying to turn any public sector undertaking of the government into a profit-making body, the authorities concerned have been asked to consider all options. Let them come up with the options and then the best one will be considered," said Sangma.

The cement plant stopped production in 2014. It has since been dogged by high staff costs. In early June 2016 the Meghalaya government approved a voluntary retirement scheme for 145 of the plant's 445 employees.

China: Shanshui regains control of plant

Shanshui Cement has regained control of Liaocheng Shanshui, a subsidiary that had been illegally occupied by 'unidentified people'. Local officials and police helped the company take back the cement plant and its offices and normal production has resumed.

During the occupation, the offices were ransacked and the official seal and business license of Liaocheng Shanshui were stolen. In a statement the company has confirmed that a corporate dispute is on-going between Shanshui Zhonggong, Shandong Shanshui and Liaocheng Shanshui. It believes that the occupation was related to this. Shanshui Cement has faced financial troubles since a shareholder battle for control of the company took place in late 2015.

Fiji: Bridge limit hits exports

A temporary 18t weight restriction on the Tamavua-i-Wai Bridge in Fiji is making exports nearly impossible for Pacific Cement. The company normally exports 200 25t containers per month to other Pacific Island countries, but the limit means that the company is currently being forced to half-pack trucks two at a time, traverse the bridge and load one truck fully on the far side. Chief executive of parent company Fijian Holdings, Nouzab Fareed, said, "Exports are becoming unfeasible. We are running at break-even and our margins are becoming totally eroded."

Australia: Competition body appeals low fine

The Australian Competition and Consumer Commission (ACCC) has filed an appeal against a US$12.6m fine against Cement Australia, which it views as too low. On 16 May 2016 a Federal Court published orders imposing a penalty of US$13.7m on the cement producer. One order was then set aside, reducing the fine to US$12.6m. However, the ACCC contends that a penalty of over US$66m is more appropriate for the breaches of Australia's competition legislation.

"The ACCC will argue to the Full Court that the penalties imposed on Cement Australia are manifestly inadequate and not of appropriate deterrent value," said ACCC Chairman Rod Sims. He added that suitable financial penalties were considered 'essential' as a deterrent to anti-competitive conduct and to prevent businesses viewing such behaviour as an acceptable cost of doing business.

The proceedings relate to contracts that were entered into by Cement Australia companies between 2002 and 2006 with four power stations in South East Queensland, to acquire fly ash. The court found numerous contraventions of the Competition and Consumer Act 2010. It also fined Christopher White, a manager in the Cement Australia fly ash business during the relevant period, a penalty of US$14,700 for his involvement in making the contravening contracts with the operator of the Swanbank power station in 2005.

Nepal: Shivam receives Indian export certificate

Shivam Cement has received an ISI certificate, allowing it to export cement to India. It is one of only a few Nepalese cement producers that can export to India.

India: KCP to expand

KCP plans to expand the production capacity of its cement plant at Muktyala in Andhra Pradesh to 3.5Mt/yr from 1.8Mt/yr at a cost of US$60m.

India: Shree Cement places order for pyro-processing line with KHD

Shree Cement has ordered a pyro-processing line from KHD for its Raipur plant in eastern India. The order follows the commissioning and handover of a previous KHD pyro-processing system that was installed at Raipur in December 2015.

The order includes: a three pier rotary kiln (Ø = 5.2m, L = 70.0m); a Pyrojet burner; a two-string, six-stage PRZ 9576 preheater; and a Pyrostep PSC2 3-135.12T clinker cooler. Commissioning for the Raipur Line II is expected in third quarter of 2017.

India: Jaypee defaults on payment

Jaypee Group companies have defaulted on loans and other payments worth US$666m. The group has, on a consolidated basis failed to repay US$434m in principal amount to banks and another US$233m in interest payments.

Jaiprakash Associates, the group's main company, reported a loss of US$500m in its 2015 – 2016 financial year, compared to US$259m in the same period in the previous year. Earlier in 2016, Jaiprakash Associates agreed a deal to sell cement plants in five states to UltraTech Cement for US$2.4bn. Once the deal concludes, Jaiprakash Associates will be left with a cement production capacity of 10.6Mt/yr in Madhya Pradesh, Uttar Pradesh, Andhra Pradesh and Karnataka.

Philippines: Cemex IPO approved

The Securities and Exchange Commission (SEC) has approved the US$857m initial public offering of Cemex Holdings Philippines. Documents filed with the SEC showed that Cemex Holdings planned to sell 2.032 billion common shares at an offer price of up to US$0.37/share to raise US$746m in proceeds. Another 304.94 million shares were allotted in case of oversubscription, which could increase total proceeds to US$857m, making it among the largest IPOs in the country, according to the Manila Standard newspaper.

Documents show that Cemex Holdings aimed to use the proceeds to repay up to US$504m worth of short-term loans from related third party New Sunward Holdings, which was used to acquire operating subsidiaries Apo Cement Corp and Solid Cement Corp. Cemex Holdings said it planned to spend US$52m for 2016 capital expenditures, including US$13m for maintenance of existing cement facilities.

Cemex Holdings is a newly formed subsidiary of Cemex Asian South East Corp., which is wholly-owned by Cemex España, which in turn is indirectly owned by Cemex. Cemex Holdings operates two cement plants in the Philippines with a cement production capacity of 5.7Mt/yr.

China: Li Liufa resigns from Shanshui Cement

Li Liufa has resigned from Shanshui Cement with effect from 31 May 2016. He held the positions of an executive director, the chairman of the board, and the chairman of both the nomination committee and the executive committee of the company. Li stated that his resignation would reduce potential conflicts of interest in any future fundraising campaigns by the company. The company and its major shareholder Tianrui Group are exploring various fundraising options, including equity fundraising, to resolve the financial difficulties of the group.

Indonesia: Semen Indonesia looking for overseas acquisitions

Semen Indonesia is planning to spend up to US$100m in 2016 to buy foreign cement companies outside of Indonesia to grow its revenue, a company official has told Reuters. Agung Wiharto, the company's corporate secretary, attributed the move to local competition. He didn't mention which countries the cement producer is considering. Semen Indonesia's revenue fell slightly year-on-year to US$2.01bn in 2015.

Vietnam: FLSmidth receives Euro34m order

FLSmidth has signed an engineering and procurement contract worth Euro34m with the Tan Thang Cement Joint Stock Company for the supply of main equipment to a new cement plant in the Nghe An province. The order includes all the main equipment from the raw mill grinding to the clinker silo, as well as a coal mill installation, civil design, commissioning and training. Once completed, the cement plant will have a capacity of 5000t/day.

"This order is the second significant order to FLSmidth in Vietnam within the past year and was won against two other international competitors due to FLSmidth's strong track record in Vietnam and the use of the most efficient equipment. Vietnam has, for many years, been an important market to FLSmidth and, after a number of years with limited growth within the cement industry, the market is starting to pick up again," said Group Executive Vice President of the Cement Division Per Mejnert Kristensen.

The order will be booked by the company's Cement Division and will contribute beneficially to FLSmidth's earnings until late 2017.

Thailand: Sika opens second admixtures plant

Sika has inaugurated a new mortars and concrete admixtures plant in Saraburi. The plant has a production capacity of 100,000t/yr of mortars and 65,000t/yr of concrete admixtures. The unit also includes warehouses and an office. It is the additives and admixtures company's second such plant in the country.

"After our existing plant in Chonburi reached its limits, we consequently invested in additional production capacities. The new plant will enable us to maintain our strong growth in Thailand in terms of production volume, sales and market share. South East Asia is one of the regions where Sika generates some of its highest growth rates and we are well positioned to continue this positive development," said Heinz Gisel, Regional Manager Asia-Pacific.

Pakistan/Philippines: Smugglers Coves?

Illegal imports have had their fair share of attention in the past few weeks from opposite ends of our Asian Cement news region:

The All Pakistan Cement Manufacturers Association (APCMA) has warned that an increase in Federal Excise Duty on cement may increase the levels of illegal imports of Iranian cement. The increase in the tax was announced in the 2016 – 2017 federal budget. Instead, the association wants the government to reduce taxes on cement to promote local dispatches.

According to the latest data, issued by the APCMA, the cement industry dispatched 35.5Mt of cement between July 2015 and May 2016, an increase of 106% year-on-year from the previous period. However, exports to countries other than India fell during this period.

Above: Only for the brave - smuggling cement from Iran to Pakistan is not without its dangers.

The Cement Manufacturers Association of the Philippines has warned that so-called 'technical' smuggling is on the rise. CEMAP president Ernesto Ordoñez claimed that the declared freight costs for nine out of 12 imported cement shipments that it inspected were undervalued at only US$3 – 10/t. These compared to the average freight costs of US$19/t for shipments from Vietnam or China. He added that the difference in the freight costs meant that the government could be losing at least US$175,000 in value added tax (VAT), according to the Philippines Daily Inquirer.

Based on the sample, Ordoñez estimates about 75% of the 161,000t of imported cement that entered the country in the first quarter of the 2016 were technically smuggled. CEMAP has called for inspection of other shipments that entered the country in the fourth quarter of 2015 and in the first quarter of 2016. They added that unchecked smuggling might lead to violations such as cement misclassification and substandard cement, which might, in turn, endanger public safety.

CEMAP data shows that imports of cement grew from 4000t in 2014 to 314,000t in 2015. Cement imports of 161,000t were recorded in the first quarter of 2016.

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Morocco: Ciments du Maroc halts wind farm project

Ciments du Maroc has decided to abandon its wind farm project at its Safi cement plant. The subsidiary of Italcementi has decided to change its energy policy in response to a growing number of renewable energy projects in the country, according to SeeNews. CEO Mario Bracci said that the cement producer is considering various options, including signing a deal with local developer Nareva for electricity supply to several of its sites, instead of investing in a generation solution at just one site.

Ciments du Maroc commissioned its first wind farm at its Laayoune cement grinding plant in 2011. This wind farm consists of six 850kW turbines that joined an existing 150kW pilot turbine installed in 2003. A 150kW pilot concentrating solar power (CSP) plant was inaugurated near its Ait Baha cement plant in October 2014. The site at Safi would have been the company's second wind farm, with a planned capacity of 10MW.

Egypt: Sinoma subsidiary wins Euro1.05bn order

Chengdu Design & Research Institute of Building Materials Industry, a subsidiary of Sinoma, has been awarded a Euro1.05bn order to build six 6000t/day cement plants from the Equipment Bureau of the Ministry of Defence.

The scope of the turkey contract includes construction of six new integrated cement production lines, operation and maintenance of two 5775t/day cement production lines of Phase II of GOE ARISH and the six Beni Suef cement production lines under the contract for three years. The order represents around 15% of Sinoma's turnover in 2015.

South Africa: PPC revenue remains flat in first half of 2015 – 2016 period

PPC's revenue has fallen slightly, by 1% year-on-year, to US$293m in the first six months that ended on 31 March 2016 from US$296m in the same period in 2015. The group's operating profit fell by 3% to US$47.7m from US$49.2m. It attributed the fall in revenue to lower selling prices of cement in South Africa and falling revenues in Zimbabwe and Botswana.

By business line, PPC's cement division in South Africa reported that its revenue fell by 5% to US$155m. It noted that cement volumes improved 'marginally' due to sales volume growth in the coastal regions following reduced imports and demand from infrastructure projects. However, inland provinces such as a Gauteng and the Limpopo area were negatively affected, due to increased competition. Outside of South Africa its cement division's revenue rose by 6% to US$85.5m. Despite sales declines in Zimbabwe and Botswana, the group's new 0.6Mt/yr plant in Rwanda was commissioned in the second half of 2015.

The group's lime division also reported that its revenue in all territories fell by 12% to US$24.9m.

The group also provided an update on its on-going projects. A US$280m 1Mt/yr cement plant in the Democratic Republic of the Congo was reported to be 83% complete in March 2016, with 'hot' commissioning scheduled for late 2016. A US$85m cement mill in Harare, Zimbabwe was reported to be 70% complete in March 2016 with plant commissioned planned for the end of 2016. Finally, a US$170m 1.4Mt/yr cement plant in Ethiopia remains scheduled to be commissioned in the second quarter of 2017.

Dem. Rep. Congo: Cimenterie de Lukala blames closure on Angolan imports

Banza Ngungu, the CEO of Cimenterie de Lukala, has blamed the closure of the company's integrated cement plant on imports from Angola. He attributed the increase in imports from the neighbouring country to currency fluctuation, according to Africanews. The Minister of Economy Modeste Bahati Lukwebo added that cement imports crossing the Angolan border were not paying the required import tariffs.

Above: The DRC is vulnerable to cement imports from several directions, particularly from Angola.

Algeria: Lafarge Algeria Biskra joint venture starts commissioning

CILAS, a joint operation between Lafarge Algeria (49% stake) and Souakri Group (51% stake) located in the northeast of the country, has started commissioning its mill at its Biskra cement plant. Operation of the site's kiln is scheduled to start in July 2016, according to the El Watan newspaper.

China's CNBM, a subsidiary of Sinoma, signed a deal to build the plant in mid-2014. The engineering, procurement and construction (EPC) contract included design, equipment supply, civil construction, installation, training and commissioning of the project. The plant will have a cement production capacity of 2.7Mt/yr when fully operational.

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Burkina Faso: CIMAF grinding plant under construction

Morocco's Ciments d'Afrique (CIMAF) has begun construction of a new 0.7Mt/yr cement plant in Bobo-Dioulasso, the second city of Burkina Faso. The grinding plant will cost Euro25m and will be completed in 18 months.

Production will mainly meet local demand but CIMAF is also looking to export towards regional markets. CIMAF already has a 0.5Mt/yr cement plant in the capital Ouagadougou.

Arabia: GCC invests US$18bn in cement, lime and plaster

Research by the Gulf Organisation for Industrial Consulting (GOIC) has shown that member states of the Gulf Cooperation Council (GCC) invested a total of US$18.1bn in cement, lime and gypsum plaster projects in 2015. It found that the number of factories making the commodities increased by 10, from 59 to 69 year-on-year, as the sectors' combined labour forces also rose from 25,304 to 26,469.

Saudi Arabia: Lifting of export ban may have limited effect

The lifting of the export ban on cement in Saudi Arabia is unlikely to lead to major benefits for cement producers in the country, according Arqaam Capital.

Saudi Arabia lifted the ban in April 2016, as the Kingdom's construction industry continued to suffer from the impact of lower oil prices, which resulted in the government cutting back on spending on many projects.

However, Mohammed Kamal, executive director of equity research at Arqaam Capital, said the boost to cement producers was likely to be limited. "Export volumes would likely be capped at 20% of output and possibly subjected to an export tax. The net effect should be margin erosion, which partly dilutes the earnings-per-share growth that results from the expansion in headline sales."

Egypt: Arabian Cement profit down

The net profits of Arabian Cement Company fell during the first quarter of 2016 to US$3.9m compared to a net profit of US$6.5m during the same period in 2015, a decline of 40.5% year-on-year. This coincided with a decline in revenues to US$62.2m, compared to US$66.4m in the first quarter of 2015.

Meanwhile, the National Bank of Egypt has postponed four payments to the company worth US$8m, as well as the interest due, until April 2017.

Kenya: Savannah partners with University

Savannah Cement has signed an agreement with a Kenyatta University run student work induction programme. Acting Vice Chancellor Professor Paul Wainaina signed a Memorandum of Understanding with Ronald Ndegwa of Savannah Cement to confirm the arrangement, which will include student internship, joint research and other activities for undergraduates and postgraduates.

Zambia: Lafarge Zambia starts new franchise scheme

Lafarge Zambia has launched its Kumanga Franchise initiative, which will enable new customers to become sole distributors of Lafarge Zambia's cement brands and other building materials such as brick force wire, tile fix and steel rods. The franchise is a commercial strategy that fits with Lafarge Zambia's strategy of 'enhancing customer experience' through the establishment of a commercial channel that presents the most effective ways of making products and services closer to consumers.

The launch was held on Friday 17 June 2017 in an event in Chamboli. Speaking at the event, the company's Human Resources Manager Thecra Milambo said that the Kumanga initiative was an innovative approach designed to promote greater access for consumers to its cement brands and other building products, increasing convenience, saving time and allowing for the purchase of any quantity the consumer desires, all within the customers' local community.

South Africa: FLSmidth appoints new Sub-saharan vice president

Danish cement plant manufacturer FLSmidth has appointed Deon de Kock as the new head of its Minerals division in Sub-Saharan Africa. De Kock was also made country head for South Africa. Both appointments are effective 1 July 2016.

Egypt: Gebr. Pfeiffer mill for Helwan Cement

The Egyptian Italcementi subsidiary Helwan Cement has ordered a new Gebr. Pfeiffer coal mill. The MPS 3350 BK vertical roller mill has an installed gearbox power of 1050kW and is designed to grind 80t/hr of coal to a product fineness of 12% residue on 90µm and 60t/hr of petcoke to a product fineness of 6% residue on 90µm. Delivery is slated for the end of 2016.

Here ***Global Cement Magazine*** presents its monthly review of global cement prices, in US$ for easy comparison. Much more price information (including the latest information on prices and market trends throughout the global cement industry from our price correspondents) is only available to subscribers of ***Global Cement Magazine***.

To get additional prices, you should subscribe - **See page 64**. In this issue subscribers receive more information from Egypt, Cameroon, Zimbabwe, Uganda and Thailand.

Sri Lanka: The Consumer Affairs Authority (CAA) allowed the five companies selling cement in the Sri Lankan market to increase the price of a 50kg bag of cement by US$0.41/bag, as of 1 June 2016.

The decision followed a request forwarded to the CAA by the five cement companies after an increase in import taxes and exchange rate effects, according to Deputy Director of Consumer Affairs Authority Samantha Karunarathne.

The CAA requested that consumers check the manufacturing date of cement packs when paying the increased amount, as the price increase will only be in effect for cement *made* after 1 June 2016.

Tanzania: Economists have described the recent cement price reduction by Dangote Cement as the 'right move,' which will 'benefit consumers and stimulate construction work' necessary to boost growth, at least in the short term. "All in all, it is a good move as it will help many people to erect permanent structures and stimulate the construction sector," said Prof Humphrey Moshi of the University of Dar es Salaam, who added that the cement industry was witnessing falling prices due to growing competition and new players like Dangote.

Dangote Cement, the largest cement producer in Tanzania, slashed cement prices to US$4.57/bag (50kg) for 32.5 grade cement and US$4.80/bag for 42.5 grade cement, delivered in Dar-es-Salaam.

Alhaj Sada Ladan-Baki, the group executive director of Dangote Cement said in a statement that the price reduction was in line with the company's commitment to help in the development of infrastructure and boost the effort to reduce housing deficit in Tanzania.

This step makes cement more affordable than it has ever been in Tanzania. The new prices represent a more than 20% discount on the prevailing market price of the product, which currently sells at US$5.95/bag in Dar-es-Salaam and higher prices across the country, irrespective of the grade.

Pakistan: Cement prices in Pakistan are set to increase after an increase in Federal Excise Duty (FED) announced in the budget for 2016-2017. Prices will increase by at least US$0.33/bag (50kg) to around US$5.25/bag from 1 July 2016.

However, some retailers had already increased the price of cement by US$0.6-0.11/bag after the budget, announced on 16 June 2016.

The cement was selling in the range of US$4.68/bag in the north of the country (including Lahore) and US$5.01-5.16/bag in the south of Pakistan, including Karachi.

According to the budget, the government has proposed to change the FED mechanism from variable 5% of Marginal Retail Price (MRP) to a fixed US$0.48/bag.

The government has also increased customs duty on clinker imports from 2% to 11%, which will be positive for the local cement industry and will discourage clinker imports. On the other hand, the government has reduced import duty on coal from 6% to 5%.

Some industry stakeholders have strongly condemned the imposition of FED on cement, stating that, following similar moves in the steel sector, the construction market would be adversely affected.

Prices are for cement in metric tonnes, unless stated otherwise. Where a source has given a range, the published price is the minimum value.

FOB {+ the named port of origin} = Free On Board: The delivery of goods on board the vessel at the named port of origin (loading), at seller's expense. Buyer is responsible for the main carriage/freight, cargo insurance and other costs and risks.

CIF {+ the named port of destination} = Cost, Insurance and Freight: The cargo insurance and delivery of goods to the named port of destination (discharge) at the seller's expense. Buyer is responsible for the import customs clearance and other costs and risks.

ASWP = Any safe world port.

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Brexit is not the end of the world...

Robert McCaffrey Editorial Director, ***Global Cement Magazine (rob@propubs.com)***

Friends in cement, the UK has decided to leave the EU. We at *Global Cement* were 'Remainers,' hoping for future reform of the EU. A slim majority of the British people saw it the other way and decided that there was no hope of reform, and that they did not want further integration. Jean Claude Juncker (president of the European Commission) himself had said in the week before the referendum that there was no possibility of further reform, no possibility of further renegotiation of the UK's relationship with the EU. Perhaps his comments clinched the final result in the referendum. With 33 million votes cast, 17,410,742 (51.9%) were for an EU exit, while 16,141,241 (48.1%) were for remaining. Only 634,750 people would have had to have changed their minds for the result to be a tie.

The votes have been cast and counted (with amazing speed and efficiency) and the result is finalised: Leave. So be it. The prime minister has effectively resigned, and we can expect the leader of the opposition to go too. A whole new suite of politicians will come in to take charge of the negotiations over the UK's relations with the EU. The UK will make the best of the situation, and will muddle through, as it always does. Nothing much will change, in all likelihood, at least not in the next two years. The remaining EU27 will not be minded to make it easy for the UK to leave, and for the most part will not wish to give the UK favourable terms ('pour encourager les autres' - to discourage anyone else from trying the same thing). But, on the other hand, a number of other countries are likely to start looking into the possibilities of staging their own referenda - and in the result of a 'leave' vote in their own countries, they will also be looking for favourable terms. Perhaps in the next few years a block of northern Euro-skeptic countries such as the UK, the Netherlands, Sweden, Denmark and Finland (er... and Germany?) will form, to demand a two-tier EU with reformed treaty rights and reduced political integration, but with full market access.

In the meantime, the value of Sterling has fallen, meaning that it will be more affordable for companies outside the UK to buy goods and services made in the UK - possibly offering a boost to exporters and leading, finally, to a more even trade balance. Perhaps Brexit is actually good news for UK cement and clinker exporters, as well as for those selling RDF into the EU. We can expect tax affairs to remain unchanged in the immediate future - and I would hazard a guess that the VAT system currently in place will not change either - no-one wants the chaos that would ensue if it did.

For the cement industries on both sides of the English Channel ('La Manche' if you are on the French side), a few things are up for negotiation. The REACH regulations on chemicals compounds, including cement and clinker, were originally seen as yet more bureaucracy but finally they can also be seen as a useful harmonisation, allowing easier cross-border trade: they may well be retained. Will the UK continue to be part of the EU ETS carbon trading scheme? Well, the UK government has been active in setting a green agenda, becoming one of the few nations to seek to set a floor price for carbon, so it is possible that it will remain within the EU ETS as a voluntary participant. While the price of carbon permits are low this is not an onerous situation, but once the scaling-back of issuance of permits takes place in Phase III, the price of permits is expected to rise to Euro15/t CO_2 and beyond - and then there may be more pressure for the UK to leave the scheme.

Other countries are worried by the UK leaving the EU, for a number of reasons. The Germans, who have enjoyed strong economic links with the UK over the years, fear an unfettered and left-wing France setting the European agenda. The Italians with their weak banking system worry that a Brexit economic shock to the EU might cause the system to fail, while countries that 'enjoy' an annual influx of British tourists may find that there is a diminution in flow due to the increased costs of holidaying in the EU. The 'Leave' vote also means that there is a greater prospect of any other country voting to leave: It surprised me and surprises me still that the Greeks did not vote to leave some time ago.

Global Cement Magazine will continue as ever, looking at the global cement industry - nothing will change. *Global Cement*'s popular specialised conferences, Global CemFuels (on alternative fuels), SynGyp (synthetic gypsum), CemProcess (process optimisation), Global Slag (slag and slag cements) will all continue as before and will become even more affordable to delegates, advertisers and exhibitors due to the fall in the pound. What implications does the vote have for the global cement industry itself? There will be uncertainty around the UK economy for at least the next two years, and by extension the performance of the EU economy. However, in the wider world, perhaps Brexit is not so important after all. The future is uncertain, but then it always was.

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EUROPEAN MARKET
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(Headquarters Germany)
Phone: +49 44 89 - 72 72 27
Mobile: +49 151 - 571 457 35
dirk.schwerter@amf-bruns.de

EASTERN-EUROPE
Mr. Artur Pawlik
(Office Breslau, Poland)
Phone: +48 74 856 58 89
Mobile: +48 606 418 529
artur.pawlik@amf-bruns.de

MENA
Mr. Hinrich Missfeldt
(Office Dubai, UAE)
Phone: +971 45 510288
Mobile: +971 54 4020801
hinrich.missfeldt@amf-bruns.de

WORLDWIDE
Mr. Christian Rothe
(Headquarters Germany)
Phone: +49 44 89 - 72 72 24
Mobile: +49 160 - 979 195 61
christian.rothe@amf-bruns.de

AMF-Bruns GmbH & Co. KG · Hauptstraße 101 · 26689 Apen · Germany
Phone: +49 44 89 - 72 7100 · www.amf-bruns.de