ICPA

The Independent Cement Producers Association

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Cemtech Monaco in pictures

The next Cemtech "Market Challenges and Technological Advances" Conference will be held on 13-16 February 2010 at the Grand Hyatt Hotel, Dubai. UAE. For more information, visit:

www.CemtechMiddleEast.com

ICPA delegation at Cemtech Monaco

Cemtech Monaco, hailed by many guests as one of the best ever Cemtech conferences and exhibitions, offered its 250 delegates a comprehensive programme of informative presentations around the latest trends in the cement markets and industry. Held at the Fairmont Hotel in Monte Carlo, Monaco, the three-day programme from 27-29 September 2009 provided guests with the right mix of market intelligence, technological expertise and networking opportunities in an enjoyable setting.

Key market issues

After the introduction by Johan Peter Paludan of the Copenhagen Institute for Future Studies, industry pundits gave food for thought on the latest market developments, not shying away from key issues such as sustainable growth and climate change. The future of the European cement industry, a possible return for normality for the Russian cement producers and global white cement markets were also part of the offerings on the first day.

On the second day, market forecasts were complemented with the latest trends in trade, examining the drybulk freight market, floating cement terminals and the Nigerian cement market and Mediterranean trade amongst others.

Technological advances

As is customary, technological expertise was also highlighted with a variety of papers: the combustion of alternative fuels, plant upgrades and low cost optimisation all provided for an interesting and productive time spent.

Showcasing the latest developments

Apart from attending a wide range of presentations, delegates also were offered the opportunity to network with industry colleagues in the 30-stand exhibition area. Here, key equipment manufacturers were able to showcase their latest advances, giving tangible evidence of the industry's technological strides of recent years.

Unrivalled hospitality

Cemtech Monaco offered delegates its hallmark hospitality, ranging from a welcome dinner and cocktail reception to a sumptuous galadinner. On the final night, guests sat down to a six-course dinner against a background of entertainment in true Monaco style.

While delegates attended presentations and the accompanying exhibition, partners and spouses enjoyed sightseeing activities, shopping and relaxation around Monte Carlo, Nice and the surrounding villages. ■

China: firing up opportunity

As the global recession hit, many countries designed stimulus packages to help weather the storm. China pledged CNY4tn (US$586bn), triggering a boom in infrastructure investment. For the cement industry, this translated into a promise for higher capacity utilisation and the need for new cement plants. However, overcapacity is just around the corner – a fact not passed unnoticed by the Chinese government, which is seeing the trend as an opportunity to lay down the foundations for the long-term strength of its cement industry.

China's CNY4tn stimulus package is firing up cement production capacity growth. However, a looming supply glut may spark off the closure of ageing plants and increased M&A activity.

Overcapacity has long been the name of the game in China – its grey cement market is unable to absorb the equivalent of an estimated 300Mta of production capacity. Investment in the cement industry has totalled around CNY88.16bn (US$12.91bn) to date. This translates to an estimated 100 new production lines by the close of 2009, followed by an additional 200 by the end of next year. If all projects complete as planned, China will increase its production capacity to 2.7bnt. Given a domestic market requirement of 1.6bnt and against a 2008 world production figure of 2.86bnt, a supply glut looms – a scenario recognised by the Chinese authorities.

Therefore, the country's state council recently ruled that the construction of additional cement capacity will be halted as a picture of overcapacity emerges from the cement production colossus. Under the state council's ruling, certain provinces will be required to draw up plans to eliminate all their outdated capacity within three years while around 40 per cent of China's old capacity needs to be taken out of active service.

However, while some sectors of the industry view the ruling as a threat, the move also offers plenty of opportunities in terms of strengthening prices and modernising much of the country's outdated

China's booming cement market?

The words "China" and "booming" appear to be welded together solidly and the country's cement markets have proved no exception. However, the global recession has curtailed growth in cement demand in more recent times. While the market expanded by 13.3 per cent to 1.2bnt in 2006, growth rates in subsequent years have slipped. In 2007, domestic cement sales rose by 10 per cent and the Global Cement Report VIII puts 2008 demand at 1.39bnt, up by 5.3 per cent YoY.

However, the government's CNY4tn stimulus package is driving large-scale infrastructure development. The expansion of China's transportation network is understood to be a key factor in creating a cement demand of 300Mt this year, according to Hong Liang and Hao Feifei, analysts at China Galaxy Securities. An additional 100Mt will be required to reconstruct Sichuan province after its earthquake destruction.

Healthy growth expectations

Looking ahead, market reports indicate that cement consumption is forecast to rise by six per cent annually in the next three years, reaching 1.8bnt by the end of 2012.

Regionally, the Central-East is expected to remain the largest cement market although growth will be the strongest in the Northwest and Southwest as the government deploys its "Great Western Development" strategy. The Central-North is forecast to see its regional market perform above the national average as investment in transport infrastructure and expanding urban markets in Beijing and Tianjin fuel cement consumption in this part of China.

production capacity, making for a healthier industry in the long-term.

Strengthening prices

For a start, the ruling could help to curtail the weakening of cement prices, particularly along the coast. The addition of new capacity will prove a further strain on prices, which are mainly supply-driven. The first six months of 2009 saw prices rise in the northwest, north and northeast of China by around 18, 13 and nine per cent respectively while prices in the Southwest, East, Central-South and southeast regions registered drops of approximately one, four, 7.6 and 11 per cent respectively. As a large part of new capacity is put into operation in the already saturated southern regions, this differential in price trends is expected to worsen unless drastic measures are taken. The ruling by the state council goes some way to alleviating this problem.

Modernising the industry

But the decision by the Chinese authorities does not only offer the opportunity to broker better prices for cement producers. For the government, it also means a chance to modernise its cement industry and bring it up-to-date with the best of contemporary practice. It would also go some way to repairing China's environmental image. Apart from only allowing new capacity in lieu for the closure of an equal amount of old capacity, the government is advocating the concentration of production in fewer, but larger lines equipped with the latest in technology. As a result, further moves are afoot.

JP Morgan foresees the introduction of additional measures to this effect:

- an approval threshold of 1000kg of clinker per capita in each province
- a 30-year limestone reserve requirement
- new cement grinding plants should have a minimum ouput potential of 6Mta
- tighter environmental standards, particularly for small-scale producers – including a tax rebate for companies that can demonstrate a 30 per cent recycling rate for raw materials.

In addition, the State Electricity Regulatory Commission has introduced a new electricity pricing programme that favours rotary kilns over vertical/shaft kilns.

Meanwhile, it has become more difficult to obtain financing for cement plants in areas with overcapacity. Banks have been asked to stop lending to companies in oversupplied sectors and IPOs, bond issuance and bill financing in these industries have been tightened up as well.

Considerable M&A scope

China's cement industry is heavily fragmented with 4566 cement companies, representing just under 91 per cent, having individual annual outputs of less than 0.6Mt. The country's 18 major cement producers rack up a mere 37 per cent of national clinker production. As a result, the scope for increasing merger and acquisition activity is plentiful. For the goverment, this provides further opportunity to modernise the industry as larger companies tend to adopt advanced technologies at a more rapid pace than their smaller peers. "We advocate mergers and acquisitions among Chinese cement enterprises to optimise the industrial pattern," said Ou Xinqia, vice-minister of industry and information technology.

The flipside of the coin

However, for China's smaller producers, there is the flipside of the coin. With the government upping its game by tightening the entry requirements for new plants, discouraging finance in saturated areas and encouraging M&S activity, smaller players may find it more difficult to seize the opportunities offered and risk being squeezed out of the market.

But for larger independent cement companies, government support is available to modernise their plant and when they are able to operate it in line with tighter environmental legislation, they can look forward to being rewarded by means of measures such as tax rebates. In addition, they may be able to benefit from increased M&A activity in the industry.

Positive outlook

Meanwhile, the signs are that China's market environment is improving. The realisation of infrastructure projects and a real estate recovery is forecasted to push up demand for cement considerably and see a strengthening of prices.

On the supply side, it becomes clear that although production capacity development will continue, its rate will slow down. Moreover, the elimination of low-productivity plants and increased M&A activity holds expectations of a healthier and more efficient industry in the long-term. Overcapacity, it appears, does not only "threaten" an industry but also offers opportunities, depending on how you react to prevailing trends. ■

Anhui Conch, China's market leader, drives on with capacity additions, adding 25.3Mta to its domestic operations, including its new Qianyang works pictured here

ICPA - Technical training and support

Many employees of ICPA member companies have taken part in the online training courses provided through the CemNet website, expertly delivered by Dr Michael Clark. These training modules continue to be extended with new ones being added every year. Furthermore, ICPA members can request to have CemNet's online training modules tailored to their specific needs as part of ICPA's exclusive corporate technical training programme. Below follows a review of the development of these courses to date and a preview of what is planned for the future.

Since their launch in early 2005, CemNet e-Learning courses have been used by thousands of individual students worldwide to bring up to speed their knowledge about the complete cement manufacturing process. The induction of new recruits into the industry is a challenge for cement companies. On the very first course one of HeidelbergCement Group's senior human resources managers took part, with the intention of evaluating the standard of the course. Subsequently, the company decided to use the course as part of the induction process for newly-recruited engineers. Since then over 30 of its personnel have taken the course.

But not only cement producers enroll their staff in the e-Learning modules. Major equipment manufacturers including FLSmidth, Polysius, KHD, Loesche, A TEC, Howden Buffalo, Lord Corporation and Ventomatic also use the course in this way.

Key ICPA membership benefit

The courses, which are provided through CemNet's dedicated e-Learning website, have received overwhelmingly positive feedback from participants. Indeed, some would say that the ability to access these courses is one of the key benefits of ICPA membership. Although the courses are well-supported by employees of non-member companies, including the world's major multinationals and leading cement manufacturing equipment suppliers, ICPA members are entitled to some free places on these courses as part of their membership benefits while their additional participants enjoy preferential rates.

Apart from invaluable knowledge, successful students are awarded a course certificate and a complementary copy of The Cement Plant Operations Handbook, now in its Fifth Edition, and considered the industry's leading technical guide to cement technology.

Cement manufacturing technology

The first course to start in 2010, "Cement manufacturing technology" is suitable for a wide range of personnel, including junior and middle management, technicians, production and control room staff and others wishing to gain a comprehensive understanding of the complete cement manufacturing process. Six modules take the student through production objectives, raw materials, pyroprocessing, cement grinding and distribution stages as well as tackling contemporary key issues such as sustainability and corporate responsibility.

Cement kiln process chemistry

In mid-2005, a new course covering "Cement Kiln Process Chemistry" was launched. Regular readers of ICR's Technical Forum and attendees at Cemtech Conferences will know that course leader Dr Clark is a cement chemist. He derives particular enjoyment from developing and leading this module. The attempt is made to provide an explanation of all the phenomena Dr Clark has encountered in his 35 years in the cement industry. However, knowledge of cement kiln chemistry can never be complete and the course is continually reviewed and extended as new insights are developed into cement kiln chemistry.

The course is divided into three modules covering overlapping aspects related to kiln productivity and energy efficiency, clinker product quality and emissions from cement kilns. The training module attempts to define the optimum between these sometimes conflicting priorities.

This is a more in-depth subject course and attracts a more specialist attendance. Nevertheless, chemists from more than 30 cement companies have enrolled. With growing imperatives to burn alternative fuels on cement kilns the relevance of the course continues to grow and strong interest is expected into the future.

Particularly heartening has been the participation of chemists from Aalborg Portland in Denmark, on at least three of the courses. As Aalborg are the pioneers in the mineralisation of cement clinker formation and acknowledged experts in cement kiln chemistry, that they find the programme useful for their chemists is indeed an endorsement.

"Cement manufacturing technology" offers students a comprehensive overview of the entire cement production process

High industry approval

Numerous key cement producers have found CemNet e-Learning courses invaluable as part of their overall staff training efforts. CemNet e-Learning alumni can be found in multinationals and major companies such as:

- Lafarge
- Holcim
- Cemex
- HeidelbergCement
- Buzzi Unicem
- Titan
- Siam Cement
- Yanbu Cement
- Egyptian Cement
- Natal Portland Cement
- JK Cement
- Cementos Lima

Cement factory quality control

Having spent many years in quality control positions on cement factories, Dr Clark has taken an ongoing interest in cement factory quality control. The CemNet e-Learning cement quality control course first considers the importance of quality control in cement manufacture, the international standards that are applied to cement and quality management systems. In the second part the focus switches to statistical process control. The third and final module then changes the focus from the theory of quality control to what must actually be done on a cement factory. Starting from raw material evaluation and raw mix design, through quarry development planning and chemistry control, control of real clinker mineralogy and finally finished cement grinding, the course covers the cement production process from start to finish.

Grinding and milling systems

The fourth course, launched in mid-2006, covers grinding and milling technology and has perhaps been the most popular course to date, attracting a regular attendance from cement companies throughout the world and also major equipment suppliers, including Loesche, Christian Pfeiffer, FLSmidth and Magotteaux.

The course covers all aspects of grinding and milling technology. Size reduction to a fine powder, drying, cooling, ventilation and separation of all the materials encountered in the world cement industry: raw materials, solid fuels, cement clinker and supplementary cementitious materials. Also how these processes are accomplished on all different types of milling systems found in the cement industry around the world: ball mills, vertical roller mills and roll presses. The course ends with discussion of some unusual types of grinding or size reduction equipment which might be encountered as the cement industry has to handle a broader range of materials as following a wider uptake of alternative fuels.

Tailormade to individual company requirements

The ICPA, CemNet and Whitehopleman were very excited at the end of 2006 when Caribbean Cement asked if a dedicated online training programme could be developed as part of their "technology transfer" process preparing for the commissioning of a new cement kiln and vertical finish mill in 2008. The online training programme is designed to assist in preparing their staff for the switch from long wet and suspension preheater technology to the FLSmidth precalciner of the new line.

"Grinding and milling systems" has been one of the most popular courses on offer

There are many advantages to a cement company requesting such a dedicated training programme from the ICPA or CemNet. Only the topics and equipment of relevance to the factory or company can be included. There is no point learning about roll presses if none are installed on a cement factory, for example. A longer-term relationship with the companies' employees can be built up and training needs assessed and responded to in a way which is much more difficult with the general courses provided on the website. Many more staff can be trained and people from different disciplines can follow different modules as required and agreed by the cement company.

Continued course development

So what is the future for CemNet online training for the ICPA and the cement industry in general? Well, the existing six courses (for a full overview with course dates for 2010, see page 7) will continue to be provided.

We are also further developing our range of courses and in 2010, our portfolio will be expanded with a "White cement manufacturing technology" course, written expertly by Dr Clark.

As many readers will know Dr Clark spent four happy years as the production and quality control manager of Ras Al Khaimah White Cement Company (RAK) in the late 1980s. His PhD is in the chemistry of the production and quality control of white cement, and was obtained by research conducted during his time at RAK. Therefore, he has a real interest to write such a course, particularly if ICPA members think this would be a useful addition to the online training portfolio.

Finally, it is the ICPA members and other cement companies who help us to decide which courses to develop. Their training needs form the core of our online training programme. Therefore, we welcome any suggestions as to how CemNet e-Learning should develop in the future! ■

Saudi Arabia: outlook remains positive

Yanbu Cement Company (YCC) has announced a SAR1.5bn (US$400m) expansion programme to push up annual cement production capacity from 3.8Mt to 7.5Mt by 2011.

The new capacity would allow the company to meet not only its domestic requirements, but also enable it to export should export restrictions be removed from the country.

However, competition in the Saudi Arabian market is intensifying with the arrival of four new players in addition to the existing 12 producers which are upgrading their production capacity. The Saudi Ministry of Industry has issued nearly 27 licenses, representing a planned capacity of 45Mta, according to analysts at NCB Capital. Both YCC and Arabian Cement have seen their market shares decline in recent times and with the likely addition of Al Safwa Cement in the west of the country, this situation could exacerbate by FY10.

Meanwhile, in 2008, Saudi cement producers sold 30Mt of cement and clinker in the domestic market, up from 27Mt the year before. Export sales in the same period were 2.8Mt and 3.5Mt.

More recent figures, for the first half of 2009, indicate another year of solid growth with sales up by 17.6 per cent YoY to 19Mt from 16.2Mt. The export ban saw export sales decline although during the first semester of 2009, the Saudi government lifted the ban on cement exports allowing Northern Cement and Tabuk Cement to export surplus output in accordance with certain conditions.

Yanbu Cement Company: expansion amidst increasing competition

What is your opinion on the construction sector in the region and what is its impact on the cement industry?

Currently the cement and construction sectors are flourishing. In oil-based Saudi Arabia, 70-80 per cent of the economy is fuelled by government expenditure that is generated by oil revenue. If there is excellent oil revenue the government spends on infrastructure including the building of schools, hospitals, etc. As a result, the private sector also becomes bolder and encouraged to start spending. Therefore, when one looks at the cement sector one can know if it is doing well simply by looking at how the oil sector is coming along.

In that regard could one say that the price of oil has an indirect, yet determinate impact on the price of cement?

I am simply giving you a relationship. If there is a boom in the oil sector, then there will be more construction expenditure and consequently, more need for cement.

However, this sometimes misleads certain groups because they misestimate the amount of cement required. Here we have a problem because in order to get a proper indication you need to do a proper feasibility study and extrapolate your predicted growth rates of the GDP or the requirement of cement. Not everyone here does proper feasibility studies and unfortunately you find a bandwagon element. The organisations are all expanding at the same time, changing an undercapacity situation into one of overcapacity with supply rising sharply. Therefore, lack of realism can lead to a miscalculation of the future base price.

I estimate that there is currently a shortage of 1Mt of cement on the west coast of Saudi Arabia. I believe that the existing cement companies can satisfy the demand of the kingdom and they are expanding well enough to absorb the increasing demand in the kingdom.

Saud Saleh Islam, director general of Yanbu Cement Co – a key ICPA founding member

However, there are many licenses being issued for new cement plants. Right now the capacity in Saudi Arabia is about 22Mt. Three years from now we are looking at a possible capacity of over 40Mt, leading to the problem of overcapacity. The introduction of these new cement organisations will increase the supply far too much and only companies that locate their plants far away from the existing players will begin to make a profit. However, most of the areas in Saudi Arabia are already covered.

When compared to other cement companies, what is it that makes Yanbu Cement Company unique?

In Yanbu Cement we have always tried to remain efficient and our production to be at the lowest cost possible. We tend to keep very competitive on price and have an excellent innovative marketing strategy, resulting in 13 per cent growth last year. We have 20 per cent of the market, which is the largest share in the kingdom. In terms of production we are very close to being second but it is very marginal and I believe we can eventually become the country's number one. ■

This article is based on a New York Times Summit Communications interview.

TRAINING: e-Learning in 2010

Since the start-up of the ICPA in 2004, one of the primary aims of the association has been to promote industry-wide training initiatives for both members and non-members – with ICPA members benefiting from 'free' technical training – and non-members paying the appropriate fees for each student participating on the various courses.

Building on the success of the last three years, ICPA and CemNet will continue to organise a range of six-week on-line training courses throughout 2008, which can be taken at work or at home and at times that suit individual students.

Courses currently available

• *Cement manufacturing technology*
Suitable for anyone wishing to gain a comprehensive understanding of the complete cement manufacturing process.
Start dates: 11 January, 19 April, 5 July and 4 October 2010.

• *Cement kiln process chemistry*
Designed for cement manufacturers and suppliers of specialist equipment and services relating to cement kiln chemistry.
Start dates: 18 January, 12 July, 11 October 2010.

• *Cement factory quality control*
Exploration into the quality control of cement production.
Start dates: 25 January, 19 April, 16 August, 8 November 2010.

• *Grinding and milling systems*
The complete cycle of raw material grinding and preparation, clinker grinding, milling and separation cycles.
Start dates: 1 February, 12 April, 9 August, 1 November 2010.

• *Cement factory maintenance*
This course explores maintenance issues and the organisation of the maintenance function in a cement factory. It also deals with the assessment of cement manufacturing equipment condition.
Start dates: 5 April, 19 July, 18 October 2010.

• *Cement kiln refractories*
A total course for cement production staff about principal refractory performance issues in the rotary kiln, refractory materials, optimised refractory usage, process efficiency of linings, etc.
Start dates: 5 April, 26 July 2010.

For more detailed information, log on to the CemNet e-learning site

http://Training.CemNet.com

Course materials

The CemNet Training Centre will manage all courses and students will be given comprehensive tutorial support. Each course is complete with full documentation, course notes, etc. No additional material is required other than a computer with an internet connection.

Course certificate

At the end of their course, successful students are awarded a Certificate of Merit from The Independent Cement Producers Association as evidence of their diligence and competency.

Focussed training modules

The ICPA has also introduced 'tailored' training packages for individual cement works. These courses are designed to provide staff at all levels at a particular company with more focussed training modules, built around the particular operational conditions of a chosen plant site.

For further information about exclusive corporate technical training programmes and group learning, please make contact with the ICPA via email at: **secretariat@ICPASS.org**■

For your diary

11 January 2010
e-Learning – Cement manufacturing technology
Email: secretariat@ICPASS.org
Web: http://Training.CemNet.com

18 January 2010
e-Learning – Cement kiln process chemistry
Email: secretariat@ICPASS.org
Web: http://Training.CemNet.com

25 January 2010
e-Learning – Cement factory quality control
Email: secretariat@ICPASS.org
Web: http://Training.CemNet.com

1 February 2010
e-Learning – Grinding and milling systems
Email: secretariat@ICPASS.org
Web: http://Training.CemNet.com

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ICPA

Improving performance

Slovakian joint-stock company East Slovakian Building Materials recently completed a comprehensive upgrade and expansion programme at its Turna nad Bodvou cement works in the eastern region of Kosice. As a result of the kiln and cement line reconstruction, the integrated cement plant of this independent producer reduced its CO_2 levels to 300kg/t as it increased its alternative fuel usage, reduced its energy consumption as well as expanding its production capacity.

Turna cement plant in Slovakia considerably improved its output and environmental performance thanks to a comprehensive upgrade and expansion programme

The project saw the erection of a new five-stage preheater tower and transport and feeding system to the tower, a new by-pass system to the cooler dedusting unit, a new ID fan and a new electrical and control systems. The alternative fuel feeding system and coal transport and feed systems underwent changes as well. Downstream from the pyroprocessing stage, clinker transport and the crusher were also renovated. In a second stage, the programme reconstructed the ball mill no. 1 classifier plant as well as including a new roller press before the grinding unit. The mechanical transport system connecting the grinding plant and the cement silos also received attention.

As part of the extensive upgrade, the plant's pyroprocessing stage received a new five-stage preheater tower

The upgrade enables the company to use air-cooled slag from the steel plant (UHKT) as well has demetalised steel slag with high levels of iron (DOT), limestone kiln dust and other by-products from the steel and power industry as alternative raw meal components.

Improving environmental performance

Due to modifications carried out, Turna has been able to reduce its CO_2 emissions of its clinker production from 950kg/t in 2003 to less than 700kg/t this year and hopes to reduce these further to 600kg/t during the next two years. In terms of cement production, CO_2 has decreased from around 625kg/t in 2003 to just under 400kg/t. By 2011, Turna aims to emit less than 300kgCO_2/t of cement. Consequently, the cement works has not only increased its production capacity but also improved its environmental performance, looking after its triple-bottom line. ■

ICPA aims and objectives

- A visible, dynamic organisation dedicated to independent producers
- Provision of operational and technical support between members
- Workshops, seminars and regional meetings arranged
- On-line information and services
- Best practice targets in sustainable cement manufacture
- Newsletters and regulatory briefings
- Benchmarking surveys and performance monitoring

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