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Final Summary Report on the 3rd European Cement Conference Prague, Czech Republic November 3-5, 2002

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for:
**CANMET
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Introduction and Background

The “3rd European Cement Conference 2002” took place in Prague, Czech Republic on November 3-5, 2002. The conference was alleged to be one of the largest gatherings of cement industry professionals from Europe and from around the world in 2002. The presentations at the conference, as in the first two European Cement Conferences in Berlin and Dresden, concentrated on technical developments and case studies, especially as related to state-of-the-art technology and achievements in sustainable development, environmental abatement and environmental impact. Being somewhat familiar with the Canadian efforts under the Action Plan 2000 Minerals and Metals Climate Change Program on Supplementary Cementing Materials (SCMs), the conference organizers asked the author to make a presentation on the newest developments and increased use of SCMs by the Canadian cement and concrete industry in its effort to reduce CO₂ emissions.

Our presentation, prepared by George J. Venta of Venta, Glaser & Associates, and co-authored by Dr. Benoit Fournier and Dr. Nabil Bouzoubaa, both of ICON / CANMET of NRCan, and the Conference attendance were kindly supported under the Government of Canada Action Plan 2000 on Climate Change.

Canada has achieved a significant increase in use of SCMs in cement and concrete over the last few years, with the SCMs utilization rate going up from 14.8% of the total fly ash production in 1996 to 17.7% in 2000. While still behind some of the European countries, this is major progress. Through this major increase in SCMs utilization, we highlighted at the Conference the commitment of the Canadian cement and concrete industry to the Action Plan 2000 on Climate Change and GHG emissions reduction. Presentation of the paper at the conference allowed Canada to inform the global cement and concrete community of our efforts and progress, to compare ourselves to the European and the U.S. achievements, while at the same time to learn about further opportunities for increasing the use of SCMs in Canada.

The 3rd European Cement Conference and Exhibition covered a range of subjects related to production and processing technology of cement, its trading and marketing. The dominant focus of the Conference was the environment aspects and sustainable development as related to the cement and concrete industries. The European cement and concrete industry, as their counterparts in Canada and the USA, is under major pressure to reduce its CO₂ emissions under the commitments made by their respective governments under the Kyoto accord, and is viewing this challenge as both a threat and an opportunity.

Nearly 150 delegates from 27 different countries met in Prague for the European Cement Conference that was for the first time also combined with a Global Lime Conference. The Conference organizers, British -based PRO Publications International Ltd., is well known and regarded for providing forums for inorganic materials scientists, engineers, production and marketing people from around the world through its North and South American Cement, European Cement, Asian Cement, Global Gypsum, and Global Lime Conferences. In Prague, 23 environmental and technical presentations were given, and a 20 -stand exhibition was

successfully staged. The Conference program with abstracts of all papers is attached, as is also a full list of the attendees and exhibitors with their contact addresses.

Prague is justly famous for the beauty of its medieval and baroque buildings, which were mercifully spared the horrors of bombing in the Second World War. Some of those same buildings have more recently suffered in the flooding of Prague in late summer, but by the time the conference took place, the city was indeed beautiful once more. It was in fact difficult to identify in most places the height to which the floods has risen: when you could tell, the level was invariably impressive and shocking. However, the floods did not affect the conference at all.

Conference Proceedings / Papers

The conference started with a welcoming party in the exhibition area on the evening of November 3rd, while the conference proper started on the morning of November 4th. The conference format was a blend of ‘tried and tested’ and experimental. Keynote speakers were scheduled at the start of each session, to ensure strong delegate attendance at all sessions. The ‘experimental’ part of the conference was the blending of cement and lime themes through the meeting. One of the delegates indicated that he had found the format most interesting, since most of the cement papers were also of interest to him as a lime producer, and that many of the same processes are used in both industries. Indeed several of the papers addressed both industries at the same time, or had case studies from both industries. As an experiment, it was very interesting and novel, but the jury is still out on its overall success.

Chris Boyd, Senior Vice-President Environmental and Public Affairs at Lafarge was the first keynote speaker, and he set the tone for the conference with a thought-provoking presentation entitled “Climate change: threat or opportunity for the cement industry?” He strongly advocated the increasing use of alternative fuels, and berated the European lawmakers for trying to ‘tie-down’ the cement industry with their ‘quick-fix’ solution of increasing regulation. He also came out as being in favour of emissions trading, but strictly on the cement industry’s terms. He pointed out that the economic shrinkage in the former Soviet Union has meant that they will not even emit as much CO₂ as their decreased target under the Kyoto Protocol, which was based on a 1990 baseline, and because of that, there is a certain amount of ‘slack’ or ‘hot air’ in the total global emissions expected for 2010. If there was a global emissions trading scheme, the former Soviet Union could get rich by selling its emission credit.

The Lafarge paper was referred to throughout the conference, and was finally voted as one of the top five papers by the delegates. Petr Krejci of PSP, the leading East-European equipment maker, followed Chris Boyd, and set a very high standard for the subsequent technical presentations, incorporating five different video clips in his PowerPoint presentation.

The final roster of speakers covered practically every area of process technology in the cement industry and many in the lime industry, and included the announcement of several innovations. Hans-Jorgen Nielsen announced a new cyclone that is claimed to be significantly more efficient

that current designs, while Motiy Yavin of the Israeli company Lime and Stone Ltd announced the successful installation and operation of an Advanced Vortex Chamber dedusting system in his company’s lime kiln, which was reported to achieve dramatically decreased particulate emissions with very low operational costs. Several themes were fully explored during the conference. In a pair of papers on the use of substitutes in cement manufacture, Joe Harder of Germany and George Venta of Canada gave a thorough overview of the possibilities and economic and environmental benefits of using substitutes, and also pointed out a number of important trends which are likely to impact the use of slag, fly ash and other substitute materials in the coming years. Discussion after these papers, as with many others, was very lively: the relatively small size of the conference allowed real dialogue between presenters and questioners.

Our paper on the “Use of SCMs as Means of GHG Emissions Reduction: Canadian vs. European Experience” was the keynote paper of the second day of the Conference on November 5th. It was very well received, being voted one of the most informative and best five papers of the meeting, and receiving the Convenor’s prize.

PANalytical, ThermoARL and SpectroAnalytical spoke about a variety of applications of XRF and XRD analysis in the cement and lime industries, including the analysis of alternative fuels, while a trio of papers from BWF, Scheuch and Inspec Fibres complemented each other well, very effectively exploring the relationship between the filter fabric in a baghouse, the baghouse design, and the way in which the baghouse is actually operated for the most efficient particulate matter emissions capture. Two operation / maintenance papers, from PSP and from Phillips Rema Kiln Services dealt with kiln alignment diagnostics and kiln construction and commissioning, while Thierry Bogaert’s popular paper on “Architecture, Environment and Functionality” gave rise to some of the most animated debate during the event.

Environmental Focus of the Conference

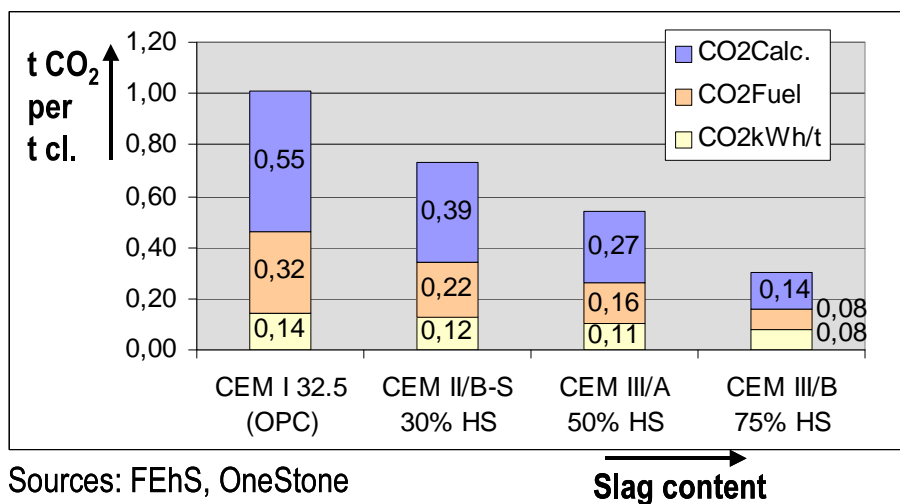
As already noted, the Conference was heavily focused on the environmental and sustainable development issues as related to the cement and concrete industry. Of course, this aspect of the event was of the main interest to the author, and some of the findings and follow-up discussion to a certain measure applicable to Action Plan 2000 on Climate Change. Obviously, the cement industry in all the jurisdictions is struggling with the same issues and challenges as far as the GHG emissions and their reduction are concerned. While there are some minor differences in approach and the degree of progress to date, there is no magical solution offered in any region.

Apart from beneficial use of **supplementary cementing materials**, mainly of fly ash, discussed in major detail in our paper and in that of Joe Harder of OneStone Consulting Group in Germany, two other major issues touched on in a number of presentations, and where perhaps Europe is ahead of Canada and the U.S.A., were:

- use of alternate (waste-derived) fuels, and
- GHG emissions trading.

Supplementary cementing materials (SCMs)

As already noted, in addition to our paper on the subject, a presentation of Dr. Harder of Germany also dealt with SCMs, primarily fly ash, and their use in cement and concrete. In his paper an overview was given of cement substitution levels with fly ash and GBFS for major countries. The clinker factor was discussed, as well as the cement substitute value chain and the available resources of SCMs. The dramatic impact of SCMs use on the cement production process and resulting CO₂ emissions per ton of clinker was shown in an example of four different types of cement with increasing slag content (0% to 75%):



In the table below he presented his estimates of fly ash and GBFS use for selected countries and the share they have in the different applications, including use as raw material for clinker production, component of blended cements and direct use as SCMs in concrete. (It would be interesting to compare their numbers with those developed a few years ago by Venta, Glaser & Associates and JAN Consultants for CANMET [Report on “Opportunities for Reducing Carbon Dioxide Emissions by Increasing Global Use of FlyAsh in Cement and Concrete – A Study of Fly Ash Production and Use in the World’s Major Economic Regions”, NRCan-98-0326].) He notes that the annual consumption figures of fly ash and GBFS are very different from country to country. He points out that in the Anglo-American countries the use of GBFS as SCM in concrete is much higher than the rest of the world. In Europe (excluding the UK) GBFS is used primarily in blended cements, while fly ash is mostly used directly in concrete. It is also noted that “slag cement” means something different in different countries; while in Germany slag cement (“Hüttensand”) is a blended product with a maximum of 95% slag content, in the USA slag cement can be 100% GBFS product. The result is that the different standards and practices have a large impact on the CO₂ calculation for the individual cement plants, and consequently the clinker factor in different countries is very different. (The clinker factor [CF] is defined as the clinker content (by weight) in finished cement. A low factor indicates high savings in CO₂ emissions.

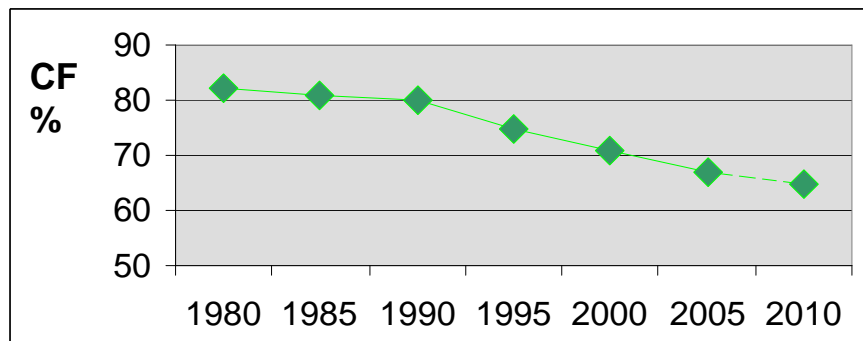
Cement substitutes by selected countries

Country	FA	GBFS	Raw Mat.		BlendCem		Concrete	
	Mta	Mta	% FA	% GBFS	% FA	% GBFS	% FA	% GBFS
China	15.0	12.0	?	0	?	90	?	10
Japan	4.9	11.5	85	0	10	85	5	15
USA	7.2	2.8	10	0	10	20	80	80
India	3.5	4.5	35	0	50	100	15	?
Germany	3.2	4.2	15	0	0	100	85	0
UK	2.3	2.0	20	0	5	15	75	85
Belgium	0.4	2.3	20*	0	*incl.	100	80	0

Dr. Harder has observed that in almost all world areas there is a large increase in blended and slag cements, including European markets which have a long tradition of making blended cements, and in developing markets, such as India and China. *(The North American experience and numbers are in sharp disagreement with his observation as far as the production and use of blended cements in Canada and the U.S.A. is concerned.)*

It is claimed in his paper that in Europe the clinker content in cement is around 70%, the rest is mainly ground granulated blast furnace slag, fly ash, (*natural*) pozzolanic material, ground limestone and gypsum. In Europe the clinker factor has been reduced by 6 % in the time period from 1990-1995. (For a comparison, the clinker content of the Canadian cement production, according to CAC, as quoted in our report on the “Current Situation of Supplementary Cementing Materials (SCMs) in Ontario [NRCan – 02-0354] and in our presentation at the Conference was 86% in 2000, a decline from 91% in 1990, with a further drop to 84% expected by 2010. This indeed appears to confirm a major difference in the degree of utilization of fly ash and GBFS, in my opinion primarily due to much higher production and use of blended cements in Europe.)

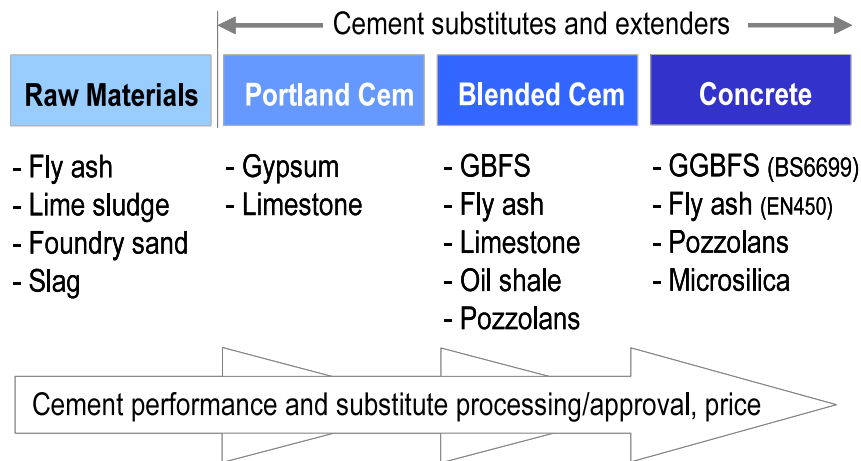
Changes in clinker factor in Europe (1980 – 2010)



Dr. Harder agrees with us that the use of SCMs as raw materials in cement production is of the lowest value (and least contributing to the CO₂ emissions reduction). Interestingly, however, he puts higher value on the use of SCMs in concrete than their incorporation into the blended cements. While this appears to contradict the push of the cement producers, it is in agreement with the intuitive and practical approach of the ready mix concrete industry:

Value chain for cement substitutes

Main Substitutes in Europe



Considering the increasing use of cement substitutes, besides market acceptance, the availability of the materials is very important. There are major resources in China, Far East, Eastern Europe, North America, India and Western Europe. When compared with the cement production, China and Eastern Europe have the highest potential for increased use of cement substitutes. Western Europe, on the other hand, will have to import cement substitutes with increased utilization.

Overall, Dr. Harder’s presentation was quite good, although his primary area of interest appears to be, naturally, Europe, Germany in particular. He seems to be more interested in the marketing than technical aspects of SCMs utilization. It was rather obvious that the main thrust of his paper was selling the services of his consulting company and a new market study expected to be published by OneStone Consulting in the spring of next year.

Use of alternate (waste-derived) fuels

In a number of presentations use of alternate fuels in cement production was discussed. It appears that in this area, Europe is far ahead of Canada and the U.S.A. Chris Boyd of Lafarge, for example, noted while on average, worldwide, waste-derived fuels constitute only 8% of the

total fuel usage in Lafarge cement operations, in Germany and France they account for a whopping 40%! The major differences in the various regions of the world he ascribes primarily to different regulations, community awareness and attitude, and costs. (*In North America, the high concerns about potential liabilities and litigations, I am sure are contributing factors.*)

As noted below, Lafarge’s Czech operation in Cizkovice among other substitute fuels has used whole tires, waste oil, reject coal, petrochemical sludge, animal waste, and as of this year it is using coal dust as its primary kiln fuel.

GHG emissions trading

As noted earlier, there also were a number of excellent papers that touched on the general challenges facing the cement industry, especially from the point of view of sustainability and climate change issues. These included:

1. Chris Boyd, Lafarge Cement: “Climate Change: Threat or Opportunity for the Cement Industry”
2. Howard Klee, World Business Council for Sustainable Development: From Ideas to Action: The Cement Industry’s Foundation for Sustainable Development”
3. Mike Gilbert, British Cement Association: “Strategies in the Cement Industry: Sustainability, Markets and Technology”

1. Chris Boyd’s presentation was a summary of Lafarge’s CO₂ Strategy, as presented originally to the Group Environment Committee on May 30, 2000. From his position as the Senior VP of Environmental & Public Affairs his presentation has truly reflected the position and strategy of Lafarge, the largest cement producer in the world.

While his presentation was a slick PR one, reviewing background information as related to global warming and the Kyoto Protocol, it made some important points, and addressed these issues from the cement industry’s point of view. He stressed that it is important for the industry in general and for Lafarge in particular to keep the following objectives in focus:

- Avoidance of costly taxes and regulations
- Flexibility and efficiency
- Fair share of burden
- Gain advantage over competitors
- Reinforcement of the image

Apparently, the threat of energy and emission taxes in Germany, France, United Kingdom and elsewhere, including on the EU level is real. For the cement industry, such taxes would be punitive, counter-productive for the environment, and disastrous for competitiveness. There are also some concerns over rigid, prescriptive regulations / over-regulation of the industry.

Lafarge sees opportunities for cutting CO₂ emissions, and many of these have already been implemented, in the following areas:

- **Substitute fuels:** These cut fuel cost, reduce CO₂ emissions, and valorize waste products. Climate change provides further argument to encourage substitute fuels.
- **Cementitious additions / SCMs:** Similarly to the substitute fuels, SCMs reduce costs, in many respects improve cement performance, increase energy efficiency per ton of cement, and provide re-use for industrial by-products.
- **Energy efficiency:** It has been emphasized that energy efficiency and reduced CO₂ emissions go hand in hand. It is likely that fossil energy costs will rise in a carbon constrained world. Chris has noted that Lafarge’s North American cement plants are about 20% less energy efficient than the company average. (I had lunch with Chris during the Conference, and challenged him on the differences between the Canadian and the U.S. plants. As we know, and the CAC / PCA numbers seem to confirm this, the energy efficiency of the Canadian plants is better than those of their counterparts in the U.S., mainly due to the still rather significant number of wet kilns operating there. While he agreed, he maintained that there still is a substantial difference in the energy efficiency even between Canada and other parts of the world. He noted that the Cizkovice plant in the Czech Republic is the best or perhaps the second most efficient Lafarge plant. Similarly, the new, high capacity operations built over the last few years in Asia have an edge over older, less efficient kilns in the U.S.A and other parts of the world.)
- **Emissions trading** appears to be a hot topic in Europe. The advantages of trading include that reductions made in one country can be set off against requirements elsewhere and an incentive to reduce more than one’s target. Cement does not move easily, unlike aluminum or steel, but credits do. Credits can be bought or sold. Trading should be voluntary. It would appear from the discussions at the Conference that trading in CO₂ emissions credit is already working quite well in the United Kingdom and Denmark, although an EU-wide system is proceeding rather slowly at this point.
- **Building efficiency:** Energy and environmentally efficient buildings, i.e. buildings constructed with materials and building systems of the low embodied energy and lowest environmental impact in terms of their emissions to air, water and land over their total lifespan, have critical impact on a range of environmental factors, including the GHG emissions. It is essential to consider the building efficiency, sustainability and environmental impact of a project over its entire operational life span, from the initial land and ecological impact, to the selected building materials production in all their steps (from the raw materials extraction, transportation and manufacture) to the actual building construction, over its useful life operation and maintenance, to its final demolition / disposal and R&R.

Lafarge’s intent is to turn the threat into an opportunity. To accept precautionary principle and to push for efficient measures. Lafarge suggests that the cement industry “moves”, takes pro-

active steps before it is pushed. Cement industry has to strongly defend itself against energy taxes, it has to emphasize its pro-active image, and to cut fuel costs. Trading is better than taxes or regulations. Lafarge is a firm believer, in its pro-active approach to the climate change challenge that it and the whole industry is facing, that the early mover has an advantage.

2. **Howard Klee**, Program Manager with the **World Business Council for Sustainable Development (WBCSD)** introduced the Swiss-based organization that counts among its members 160 of the environmentally most progressive companies worldwide. Its 40 regional partnerships network represents more than 1000 business leaders from around the globe. Canada appears to be represented through The Excel Partnership Canada as well as by CGLI USA/Canada. WBCSD aims:

- to be the leading business advocate on sustainable development,
- to create a framework that allows business to contribute effectively to sustainable development,
- to demonstrate business progress in environmental and resource management and corporate social responsibility, and
- to contribute to a sustainable future for developing nations and nations in transition.

One of the WBCSD work program projects of particular interest to the Conference attendees is its **Cement Sustainability Initiative**. The goals of this initiative, as presented in Prague, are:

- 1) Deliver an independent, credible evaluation of the cement industry’s performance across the environmental, social, and economic dimensions,
- 2) Identify a future ‘vision’ of the industry and to provide recommendations and guidance on moving toward that vision over the next 20 years,
- 3) Identify clear actions, goals, timeframe, and engagement plan for improved performance,
- 4) Provide analysis and implementation tools to assist industry in moving forward,
- 5) Provide a platform for ongoing engagement with others, and
- 6) Complete the actions identified in (3).

Major cement companies, such as Cemex, Heidelberg, Holcim, Italcementi, Lafarge, Siam Cement, and Votorantim, among others, in total representing approximately 1/3 of the current cement market, have signed on and are participating in the Initiative. As the bulk of the Canadian cement operations are controlled by one or another of the companies noted above, we can hope and expect that through them and/or CAC we as a country are aware of the Initiative’s progress.

The WBCSD’s Cement Initiative has an excellent website www.wbcscement.org with a wealth of up-to-date information and downloadable reports / studies. The Initiative appears to run in three phases:

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- Independent study (1999-2002), largely conducted by Battelle (reports available on the website),
 - Business Plan for Action (2002), and
 - Action (2002-2020), including individual implementation, joint projects, and communication and outreach.

Other project outputs include Sustainable Enterprise Toolkit, CO₂ measurement and accounting protocol, and Health and Safety Task Force.

The Agenda for Action, signed by chairmen of the major cement concerns mentioned above, includes **joint projects** to develop guidelines, best practices, reporting and monitoring systems, as well as **individual company actions** to commit to sustainable development, to implement guidelines, and to publish emissions, in six key areas:

- 1) Climate protection
- 2) Fuels and raw materials use
- 3) Employee health and safety
- 4) Emissions reduction
- 5) Local impacts on land and communities
- 6) Internal business processes.

Detailed description and analysis of the Cement Sustainability Initiative, as available in the Battelle reports, in the Action Plan, on the website, and as summarized in Howard’s presentation at the Conference, is beyond the scope of this report. Only a few points concerning the Climate Protection should be noted. The joint projects in this area concern development of a CO₂ protocol for the cement industry (already delivered) and coordinated work with WBCSD/World Resources Institute (WRI) and other organizations to investigate public policy and market mechanisms for reducing CO₂ emissions. On the individual company actions site, steps should include the use of the tools set out in the CO₂ protocol to define and make public their baseline emissions, to develop a climate change mitigation strategy, and publish targets and progress by 2006, and to report annually on CO₂ emissions in line with the protocol.

3. Mike Gilbert, Chief Executive of the **British Cement Association** delivered the third paper addressing the cement industry, the challenges it is facing, and the strategies for coping with these in the XXIst century. While he addressed these mainly, obviously, from the point of view of the British cement and concrete industry, many of these issues have global application.

His presentation was a more general, “association-type” of a paper, relying fairly heavily on the information developed by the WBCSD. He reiterated the fact that the cement industry is facing new strategic challenges for the future as well as the old ones of the past! Critical amongst these are:

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- The challenges of *sustainability* in the industry; and the question that Mike posed was - what is the message we can give?
 - The *market* pressures we are under - who do we need to target to make changes in the market place?
 - And in *technology* – how will we communicate our solutions in the future?

While there were a lot of other questions raised, this paper provided, unfortunately, very few answers. It appears that in the UK, cement and concrete are very much on the defensive. The cement consumption per capita there is only 50% of the European average. A considerable portion of his paper was devoted to steps to reverse this process, to advocate and promote the use of cement and concrete, to educate and train the specifiers and users.

Social program

Alongside the technical program an interesting and entertaining social program was organized. On the evening of the first full day of the conference, buses took the delegates to the Prague Rudolfinum, a magnificent concert and exhibition hall built in 1888 that had once served as the Czech Republic’s parliament building. After pre-dinner drinks to the civilized tones of a classical harpist, delegates enjoyed a traditional Czech dinner of venison pate, followed by beef consommé, followed by roast goose with potato dumplings. Dinner was accompanied by classical music played by some of Prague’s most distinguished musicians, and interspersed with folkloric dance, performed by an enthusiastic folk group. Post-dinner coffee was helped down by an all-too short but revealing exhibition of can-can dancing by a dozen beautiful young ladies. According to delegate response, the Gala Dinner was very popular.

Field trips

Lafarge Cement, Cizkovice

On Wednesday November 6th, a group of delegates visited the Lafarge Cement Cizkovice plant, 60km north of Prague. A full report on the visit and on the plant itself will be found in the December 2002 issue of GCL (Global Cement & Lime). Although the Cizkovice cement plant was originally established back in 1898 with a couple of shaft kilns, over the years it was modernized a number of times. A new cement plant was built at an adjacent location in Cizkovice in 1975, and that operation was acquired by Lafarge Cement in 1992. It was reconstructed in 1995/96. It has a 72 m long rotary kiln, 4.4 m in diameter with a 5-stage preheater / precalciner. Its total capacity is 2,800 tons/day. Coal dust is the main fuel, cementitious marl represents the major portion of the kiln raw meal. Among other substitute fuels, the Cizkovice plant has been also using whole tires, waste oil, reject coal, petrochemical sludge, animal waste, and as already indicated above, as of this year coal dust is the primary fuel used. In my discussions with Chris Boyd, Lafarge’s senior environmental executive, Cizkovice is one of Lafarge’s most modern operations and perhaps the most energy-efficient plant in the world.

CEZ Power-Generating Station and KNAUF Gypsum Board Plant, Pocerady

The following day, November 7th, I had an opportunity to go on a separately organized visit [through my contacts at Gebr. Knauf Westdeutsche Gipswerke (Knauf)] to a coal-fired power-

generating CEZ plant in Pocerady and the adjacent modern Knauf’s gypsum board plant, about 100 km northwest of Prague. The CEZ 5x200MWe station (i.e. about the same capacity as OPG’s Lambton PGS) uses sub-bituminous (“brown”) coal from the Most region of the country (30% ash content, 0.8% sulfur), and was one of the first Czech power plants equipped in 1994/96 with wet limestone flue gas desulphurization (FGD) units producing commercial grade by-product gypsum. Within a few years (1994-98), following the fall of communism in Czech Republic, all ten CEZ coal-fired power stations with a total capacity of 6517 MWe (~ 64% of the total electricity generating capacity of CEZ) installed FGD reactors. As a result, SO₂ emissions were reduced from 769,128 tons in 1992 to 73,237 tons in 2000, 9% of the 1992 levels! Similarly NO_x emissions were reduced from 128,522 tons to 62,925 tons in the same time period, CO emissions from 17,713 tons to 3,991 tons, and TPM from 57,855 tons to only 2,334 tons. The total energy production in the ensuing years, despite some fluctuations, did not change substantially. As a result, the CO₂ emissions were reduced only marginally from 41,593 ktons in 1992 to 35,959 ktons in 2000.

Synthetic FGD gypsum is used by Lafarge’s Cizkovice cement plant and, mainly, by Knauf in their gypsum plant in Pocerady. Knauf’s gypsum wallboard plant is a modern operation, built and fully operational as of 1995, supplying about 2/3 of the wallboard needs of the Czech construction industry. This plant, similarly as BPB / Rigips plant in Melnik, is operating on 100% environmentally friendly FGD gypsum.

Conclusions

This was a world-class event in many ways. The technical program was very popular with attendees, while the social events and overall organization and atmosphere of the conference were very highly praised. In common with other events in the industry, however, this conference did not attract as many delegates as in the past, in general, and enough cement and lime producers, in particular. The organizers therefore promised to undertake specific efforts to improve this situation before the next event.

The conference proceedings on a CD, which includes all of the available PowerPoint presentations and all of the written papers associated with the presentations are included with the final version of the Conference report to the Project Authority.

It was a good and interesting conference, and our presence there was rather useful, both from the point of view of informing the international community about the actions and progress of the Canadian cement industry towards the reduction of the GHG emissions associated with cement and concrete production, and from the point of view of learning from the experience and progress in other regions of the world. While it would appear that at least some of the European countries, such as Germany or the Netherlands are ahead of us in production of blended cements and use of SCMs in concrete, reducing thus the clinker content in the total cement production, the challenges the cement and concrete industry is facing, the threats and opportunities, are the same on both sides of the ocean. We have to keep communicating, sharing our findings and

progress, and in this manner jointly approach the actions mitigating the GHG emissions and resulting climate change.

Meeting at the Canadian Embassy in Prague

I also had an opportunity to meet with Mr. Georges Lemieux, Counsellor of the Canadian Trade Commissioner Service at the Canadian Embassy in Prague, and his assistant, Ms. Ceska. Climate change is a topic of interest these days at all levels of society, in all jurisdictions and regions of the world. In fact, just prior to our presentation on the work conducted by ICON / CANMET and Venta, Glaser & Associates on the beneficial use of supplementary cementing materials as a means of CO₂ emissions reduction in the cement and concrete industry, and thus the contribution of that industry to the Government of Canada Action Plan 2000 on Climate Change, the Canadian Embassy in Prague and Mr. Lemieux with his colleagues from the Canadian Embassies in Poland and Hungary sponsored a Climate Change Seminar in Krakow.

Mr. Lemieux and his colleague were very appreciative that we alerted them of our presence at the Conference and of our presentation. He noted that while there are many conferences held in that beautiful city, unfortunately few Canadian participants think of letting the Embassy and our Trade Commission there know they are attending. They felt that the climate change topic was very appropriate.

The general situation in the construction industry in the Czech Republic was discussed, too, especially as related to the pent-up housing demand following years of neglect under the previous regime, sorely needed rehabilitation of the inadequate, substandard apartment houses (infamous panelized structures), and potential use of modern Canadian construction technologies, materials (such as gypsum board) and know-how.

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