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CEMENT, ENERGY and ENVIRONMENT

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Dr. Raman Singh, Hon'ble Union Minister of State for Commerce and Industry, releasing the Special Publication "India's First Access Controlled Expressway Mumbai-Pune" at the Mumbai Seminar on the Expressway. Shri Vikramsinh Patankar, Hon'ble Minister for PWD Government of Maharashtra receives the first copy, cheered by Shri TMM Nambiar (right) President CMA and Shri B.L. Jain (left) Vice President CMA. The Hon'ble Minister also released the 'Handbook of Ready-Mixed Concrete' on the occasion (see pages 16-18 for detailed report).

MESSAGE

Dear Readers,

Several emergent issues and recent developments of major significance for the indigenous cement industry need appropriate attention. The growth in capacity of the industry in recent years has outpaced the growth in demand. This has naturally led to a recessionary trend in cement prices and new ventures are becoming fewer, as a result. The industry has been looking eagerly to the fast-pace implementation of the several ambitious schemes of infrastructure development like the Prime Minister's Gramin Sadak Yojana and projects of the NHAI to construct 13,000 km of 4/6-lane highways under the Golden Quadrilateral (GQ) and the North-South and East-West (NS-EW) Corridors. The industry has been expecting a surge in cement demand as an outcome of the rapid implementation of infrastructure development programmes, namely, in Rural Housing, State and National Highways and Expressways. The success story of the Mumbai-Pune Expressway, constructed in cement concrete and completed ahead of schedule, constituting a show-piece of unique connectivity and smooth high-speed driving through its entire 97-km six-lane stretch, is still topical. In fact, it has kindled hopes of being replicated in many other parts of the country. It is encouraging that out of the 5851 km total length of the Golden Quadrilateral, 1637 km of 2-lane equivalent stretch is planned to be built in concrete. Similarly, for the NS-EW Corridors, while consultants are being appointed by NHAI for preparing the DPR, it is expected that 30 to 40 per cent of the total length will be in concrete. These trends bid fair for a jump in cement consumption and thus paving the way for the much-needed boost in cement demand. Frankly, such a turn-around for the industry is long overdue.

The *Energy Conservation Act* came into force from April 2002. The Bureau of Energy Efficiency (BEE), constituted under it, will be the agency to oversee the implementation of energy conservation measures for major consumers; this will be done through participatory involvement. The Act prescribes

compulsory Energy Audit by designated consumers eg, energy-intensive industries, wherein standardisation and labelling of energy equipment is going to be mandatory and defaulters are liable for penalties. With a commendable record of energy conservation measures and initiatives over recent decades, Indian cement industry in general has earned plenty of accolades both on national and international platforms. Even so, experience with "command and control" regimes would urge that statutory impositions are not free from distortions in implementation nor can one preclude "overkills".

In the realm of environment, the Central Pollution Control Board (CPCB) has recently constituted a National Environmental Task Force for cement industry with representatives from the Board, the Ministry of Environment and Forests, the cement industry, NCB, TIFAC of DST, etc. The objective of this Forum is effective implementation of total pollution control compliance by the cement industry. The provocation for this might be the findings of a recent survey of the industry by CPCB, which revealed that out of 98 operating major cement plants, 25 were not complying with the stipulated emission control norms. Besides, it is alleged that while cement plants usually comply in abating particulate emissions from stacks, control of fugitive dust emissions at handling and transfer points remains neglected in most cases. In another extreme measure, the Tamilnadu Pollution Control Board has recently (06.05.2002) issued a circular urging all cement plants to adopt "on-line continuous monitoring with computer recorder and printer arrangement to measure suspended particulate matter, SO_2, NO_x emission of all stacks attached to kiln, coal mill, cement mill and clinker cooler within three months." The circular further advised plants "to furnish consolidated stack emission report with graphic printout showing peak emission in a day on monthly basis". This obviously is a tall order for most plants which already have to grapple with day-to-day problems of availability and quality of grid power, varying quality of linkage coal, all of which seriously affect the smooth functioning of pollution control equipment and installations.

The message is loud and clear that the statutory bodies are becoming increasingly stringent in the implementation of energy conservation and pollution control measures. Regardless of these, Indian cement industry has long adopted environmental protection and ecological preservation, as well as community welfare as articles of faith, and is steadfastly pursuing social forestry, greening of the environs, and social upliftment activities in surrounding areas, besides of course, instituting advanced pollution control measures in modern plants. It would then seem that the industry's good work is short on visibility and a communication gap exists between the industry and the powers-that-be. Precisely to bridge this gap, CMA has introduced the Programme — " Performance Improvement in Energy Conservation and Pollution Control through Benchmarking and Rating". The Programme is aimed at continuous improvement in performance of the participating companies through voluntary sharing of data and "knowledge", and comparison with the "best practice". The results, particularly comparison with best performers in the world, will bring in transparency and a realistic picture will become available to the statutory bodies. Participation in the programme is bound to bring in rich dividends, so much so all cement plants stand to gain by enrolling themselves in it.

The Journal, as always, continues its mission of providing a window on "appropriate technologies" and latest "concepts" on energy, environment and sustainable development from published literature across the world.

In view, however, of the possibility of an information overload in the journal, its bulk has been limited to an optimum by transferring the surplus of the information being garnered to CMA website (in addition to what is printed in the journal) which can be accessed by the members. In this manner, CMA will build a wealth of information/database, which eventually can add to the contents of the Cement Portal.

A.V. Srinivasan
Secretary General

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ENVIRONMENTAL IMPROVEMENT AND ENERGY SAVING AT MANIKGARH CEMENT

The article describes the pollution control, environmental improvement and energy/ material conservation measures successfully implemented by Manikgarh Cement since the commissioning of its plant in 1987. Ranging from replacement of originally installed equipment, to retrofitting and upgradation in tune with technological advance, and utilisation of wastes as raw material and fuel, the plant has adopted every possible means to improve environmental quality and energy efficiency besides resource conservation. The plant valorises the entire fly ash produced at its captive thermal power station for cement production and has been successfully using rice husk and bamboo dust as alternative fuels. It has an impressive track record on tree plantation too and is dedicated to the uplift of the local community. Winner of a number of National Awards for its various achievements in environmental excellence and energy performance, the plant has obtained IS 14001 accreditation from December 2001...- Ed

Introduction

Manikgarh Cement, a division of M/s. Century Textiles & Industries Ltd., is a 1.5-million-tonne plant located at village Gadchandur in Chandrapur Dist. of Maharashtra State. The plant, commissioned in 1987, is equipped with latest hi-tech equipment from USA and Germany.

Greenery developed on waste dump in mines.

Plant location in relation to risk receptors

The plant site is situated between 19°42'15" and 19°43'15" north latitude and 79°10'0" and 79°11'15" east longitude at an elevation of 256.20 m above mean sea level, south of village Gadchandur, Tehsil Korpana, Dist. Chandrapur, Maharashtra. It is about 50 km south of Chandrapur, the district headquarters and 20 km away from Korpana. The nearest railway station is Ballarshah on Central Railway in the Delhi – Chennai trunk route, 32 km away. The plant is accessible by road, i.e. State Highway No. 282 Chandrapur – Adilabad. The nearest airport is Nagpur, which is 210 km by road. There is a small earthen dam 'Amal Nallah' which is about 3 km away from the plant and no river anywhere nearby.

The area has a generally dry climate characterised by hot summers, March to May and well-distributed rainfall during the southwest monsoon, June to September. The cold season lasts from December to February. The maximum and minimum temperatures recorded are 48.5° C and 6.5° C respectively. The predominant wind direction is northeast.

Environmental planning

A noteworthy feature of the plant is that from its very inception, adequate care was taken for environmental protection, e.g. installation of Electrostatic precipitators (ESP) for kiln / raw mills and cement mills. To control fugitive dust emission, dust collectors have been provided on limestone silos, raw material hoppers, blending/storage silos, kiln feed area, clinker storage yard, clinker / additives hoppers and feed area to cement mills, cement silos, packing machine and packing floor, etc.

Tables 1 and 2 list the range of dust collecting equipment in operation at the various sections of the plant.

Table 1 ESP's in service in various sections

Raw mill and kiln	Voltas Model 2 PIC, 35 GP (12" x 36" x 36") (4 Fields) (4 x 9)	2 Nos.
Clinker cooler	Flakt India Model FAA – 3 x 37.5 M 1121– 40 A-2 (3 Fields)	1 No.
Cement mills	Voltas Model IC, 16 GT (12"x24"x27") (3 Fields) (3x9)	1 No.
Cement mill(New)	Flakt India Model FAA 2 x 45 H – 3060 A1 (2 Fields)	1 No.
Power plant	Flakt India Model FAA 3 x 35 H 4280 A2. (3 Fields)	2 Nos.

Table 2 Details of dust collectors at various points for fugitive dust control

Location	Numbers	Location	Numbers
Crusher	1	New cement mill hoppers	1
Coal mill	2	New cement mill conveyors	1
Limestone hopper at mines	2	New cement mill separator	1
Raw material hoppers	2	New cement mill auxiliaries	3
Blending / storage silo	1	New cement silos top	2
Kiln feed area	1	New packing plant	1
Coal feed area	1	Powerplant crusher building	1
Clinker storage	1	Power plant coal conveyors	1
Old cement mill hoppers	2	Power plant coal bunkers	2
Old cement silos top	1	Clinker conveyor tunnel	1
Packing plant	2	Laterite crusher	1
New cement mill dryer	1	Coal conveyor tunnel	1

Environment friendly design

Fugitive emissions - The plant has a bi-cable aerial ropeway for transporting about 6000 to 7000 metric tonnes (MT) of limestone daily from the lease mines located some 10 km away. As an alternative to either a battery of belt conveyors or a fleet of trucks, this has aided in totally eliminating fugitive emissions, which would otherwise have arisen from belt transfer points or from continuous plying of trucks through such a long distance. In addition, the conveyor belts for transportation of raw materials, intermediate and finished products, within the plant are totally covered. Also, all material storages, i.e. shale, laterite, coal, gypsum, clinker, are covered. Further, use of modern packaging machines, wagon loaders and truck loader entails little fugitive emission.

Process-related gas emissions - Generation of toxic oxides is considerably lower, since about 60 per cent of the pulverised coal is burnt in the precalciner at around 900° C. The preheater exit gases at 360 – 380 °C are totally used for drying raw materials in raw mills and coal mill, so much so, the vent gas temperature from these mills is 100-105° C and 80-85° C respectively.

Upgradations and retrofitting

While it is a fact that the plant started with the latest equipment and technology then available, the management has never hesitated to upgrade them for better energy efficiency and environmental protection, and that at considerable cost. Following is a list of the upgradations and retrofitting carried out.

Upgradation

i. Replacement of the Norric dust collector on cooler vent with a high efficiency ESP (1993). Cost Rs 3.5 crore.

ii. For uninterrupted power supply, especially to the kiln/cooler sections, a 10 MW captive thermal power plant was set up (1993). Cost Rs 3.5 crore. In addition, dust collectors are installed in the plant's coal handling circuit to minimise fugitive emissions. The two boilers in this plant are equipped with 2 nos. Flakt ESPs.

iii. Installation of latest Roller Press grinding unit for cement grinding (1995). This unit also has an ESP for mill vent gases and a number of dust collectors on various auxiliary equipment.

Retrofitting

i. Kiln/raw mill ESP's (1997). Cost about Rs 2 crore.

ii. The entire internals of the cement mills' ESPs for improving the collection efficiency (2000), Cost Rs. 36 lakh.

iii. Cooler ESP internals (September 2000). Cost Rs. 30 lakh.

iv. Modification of belt conveyors into flow conveyors for cooler ESP discharge.

Pollution control

Wide ranging measures as below have been undertaken to control pollution in and around the plant.

The fly ash generated from the captive power plant is totally being consumed, part as a raw mix component and part as additive for the manufacture of Portland pozzolana cement. This has eliminated the problems related to disposal/dumping of ash. Table 3 gives the trend of fly ash consumption by the plant from 1998 to 2001

Table 3 Trend of fly ash utilisation by the plant

Year	Fly ash consumed, tonnes		
	Raw meal preparation	PPC Manufacture	Total
Jan 1998 to Mar 1999 1999	24140	16277	40417
Apr 1999 to Mar 2000	24342	14795	39137
Apr 2000 to Mar 2001	12190	16041	28231

Waste water from the power plant is collected in separate tanks, neutralised and used for spraying on roads and coal gantry, wetting of fly ash, fire hydrant, gardening, etc. Oil separators have been introduced for separating the oil from the power plant effluent, vehicle wash water, etc.

The entire domestic effluent from the Factory Township is treated in a tertiary treatment plant and the total treated water is used in power plant cooling towers. Table 4 gives the trend of use of waste water from 1995 to 2001 while Table 5 illustrates the declining trend of water consumption both by the cement plant and the captive power plant for the same period.

Table 4 Trend of use of water from treated domestic sewage in captive power plant

Years	1995 - 96	1996 - 97	1997 – 98	1998-99	1999-2000	2000-01
Water consumed, kilolitres	102311	340950	396740	358960	406410	303340

Table 5 Declining water consumption trend

Year	Water consumed	
	Cement plant kilolitres/tonne	Captive power plant, litres/kW
1995-96	0.250	7.69
1996-97	0.227	7.78
1997-98	0.212	6.57
1998-99	0.210	4.96
1999-2000	0.212	1.49
2000-01	0.221	0.847

Dust suppression systems are provided at ropeway unloading hopper, laterite/fly ash feeding hopper and coal feeding hopper to control fugitive emission. On the approach roads to crusher and at the crusher hopper, water spraying arrangement with compressed air is provided. Also water is continuously sprayed on the limestone silo extraction belts before the crushed stone is fed to the ropeway.

Biodegradable wastes from colony, canteen and guest houses are collected and used for making compost manure.

Environmental improvement

The plant places emphasis on maintaining general cleanliness, good house keeping and pollution free environment in and around the plant. Massive tree plantation has been done at both mines and factory. About 2.75 lakh trees have been planted till date the details of which are given in Table 6. Rose and fruit orchards are developed and maintained. The plant surroundings are aesthetically landscaped and gardens laid out. In rehabilitation of mined-out areas, the plant's mines were adjudged IBM's *'Champion of Champions'* for the 'Environment and Mineral Conservation Award' in 1997.

Table 6 Details of tree plantation by the plant

Factory and Colony	
i. Total area available	252.74 Hectares.
ii. Total operational area	23.67 Hectares
iii. Total number planted up to 2001 end	1,74,516
iv. Number of surviving trees	1,11,795
Mines	
i. Lease area	264 Hectares
ii. Area planted	47.91 Hectares
iii. Trees planted during 2001	3585
iv. Total number planted up to 2001 end	79,863
Mines colony	
i. Total area	42.32 Hectares
ii. Area planted	17.60 Hectares
iii. Trees planted during 2001	365
iv. Total plants planted up to 2001 end.	23,808
Plantation during 2001	**7,180**
Grand total of the plants planted	**2,78,187**
Grand total of surviving plants	**2,08,535**

Special operational features

The plant has introduced a number of measures to overcome certain operational problems. Following among them are noteworthy.

The poor and fluctuating quality of coal received from collieries, when used in rotary kilns, normally causes kiln upsets. Hence, such coal is used exclusively in the thermal power plant. This has enabled to maintain the kiln/flash calciner coal quality steady and run the ESP's with the bare minimum CO tripping. The two boilers in the power plant are fluidized-bed combustion type and can burn high-ash, low calorific value coal. Also as the burning temperature is 880-900° C the generation of toxic oxides is minimal.

Landscaped greenery adjoining the administrative block.

Energy conservation

Side by side with environmental care, the plant has taken a wide range of measures for reducing specific energy consumption, both thermal and electrical. Important among them are:

Thermal

i. Kiln production upgraded from 3400 TPD to 4200 TPD.

ii. IKN Kids system incorporated in the clinker grate cooler.

iii. Low -pressure cyclones introduced in the kiln preheater.

iv. Rice husk and bamboo dust used as fuel in the boilers of power plant. (*see* Table 7 for details)

v. Segmental thimbles were incorporated in preheater stages 2 and 3.

vi. Replacement of multi-channel Shakti Burner by Pillard Burner to improve the burner efficiency and fuel economy.

Electrical

i. Conversion from pneumatic to mechanical conveying of raw meal and cement.

ii. Variable frequency drives incorporated in various fans and VRM air separators.

iii. Roller-press circuit installed as an additional unit for finish grinding.

iv. A number of fans like cooler ESP fan, raw mills' ESP fans, Sepol fan, etc, replaced with high efficiency ones.

v. Modifications to blending silo system.

vi. Switch-over to cluster-type nozzles in the water spray system of gas conditioning tower (GCT) which is expected to reduce the temperature in GCT's from 175°C to 135°C and to reduce the preheater fan load.

vii. Modification of the preheater fan, coal mill fan and coal mill bag house fan and booster fan by high efficiency fans.

Through all these measures, specific thermal energy consumption has been brought down from 792 kcal/kg of clinker in 1995-96 to 743 kcal/kg clinker in 2000-01. Likewise specific power consumption has been reduced from 113.31 kWh/t of cement to 91.3 kWh/t of cement. Efforts are currently on to further bring down the specific power consumption to 82kWh/t of cement.

Table 7 Use of agricultural wastes as fuels in captive power plant

Year	Quantity used, metric tonnes	
	Rice husk	Bamboo dust
1995-96	3175	-
1996-97	2701	-
1997-98	1771	1660
1998-99	1601	1174
1999-00	204	2848
2000-01	-	2533

Social commitment

Apart from providing a good sewerage system and proper disposal of waste material, the plant carries out periodical testing of drinking water. The plant's concern for the health of the community in and around the factory will be evident from its establishment of a well equipped hospital with qualified and experienced doctors. Frequent medical camps like TB/cancer detection, squint surgery, cataract operation, medical diagnostic and follow-up, blood donation, AIDS awareness, immunization, pulse polio campaign, etc, are arranged The waste disposal from the plant's hospital is carried out as per Pollution Control Board norms.

To improve the environmental quality of the surrounding locality, the plant has extended tree plantation to some of the nearby villages also. Hand-pump sets have been installed for drinking water. A crematorium has been constructed for village Gadchandur. Dust bins have been constructed in village Gadchandur for maintenance of cleanliness and hygienic conditions.

ISO 14001 Certification

Under Environmental Management System implementation, 21 Environmental Management Programmes were undertaken for reducing the impact of various activities on the environment. In the second stage, 15 Programmes were taken up of which 9 have been completed and 6 are in progress. Following successful completion of the Certification audit for ISO 14000 by the Bureau of Indian Standards (BIS) the plant has obtained ISO 14001 accreditation from 14 December 2001.

Awards won

In recognition of the plant's efforts for conservation of environment and energy, and maintaining a safe working environment, it has received an array of awards. These are listed in Annexe 1.

Annexe 1

National and International Awards Won

A - Environmental

(i) Gem Granite Environment Award 1996-97, in recognition of outstanding contribution towards preservation and protection of environment - First Position.

(ii) IBM's "Champion Of Champions" Award 1997

(iii) The Maharashtra Rajya Vanashree Award 1996 - 3rd Position.

(iv) IBM Awards for Mines Environment & Mineral Conservation

	Award	1991	1992	1993	1994	1995	1996	1997
1.	Overall performance	-	-	I	-	-	I	@
2.	Topsoil management	I	I	-	I	-	-	@
3.	Management of subgrade	-	-	I	-	-	II	@
4.	Air quality management	-	-	I	II	II	-	@
5.	Water quality management	III	III	I	-	-	-	@
6.	Noise vibration studies and aesthetic beauty.	-	II	I	-	I	I	@
7.	Waste dump management	-	-	II	III	III	I	@
8.	Publicity and propaganda	-	-	II	-	-	-	@
9.	Reclamation and rehabilitation.	-	-	-	-	-	II	@

I, II and III respectively denote the position of the Award in the category
@ denotes top position for Awards in all the categories 1-9

B - Energy Conservation

(i) National Council for Cement and Building Materials (NCB) Award for Best Improvement in Energy Performance 1996-97

(ii) National Council for Cement and Building Materials (NCB) Award for Best Improvement in Electrical Energy Performance 1996-97

IMPRESSIVE ENVIRONMENTAL PROTECTION AT MYSORE CEMENTS' AMMASANDRA PLANT

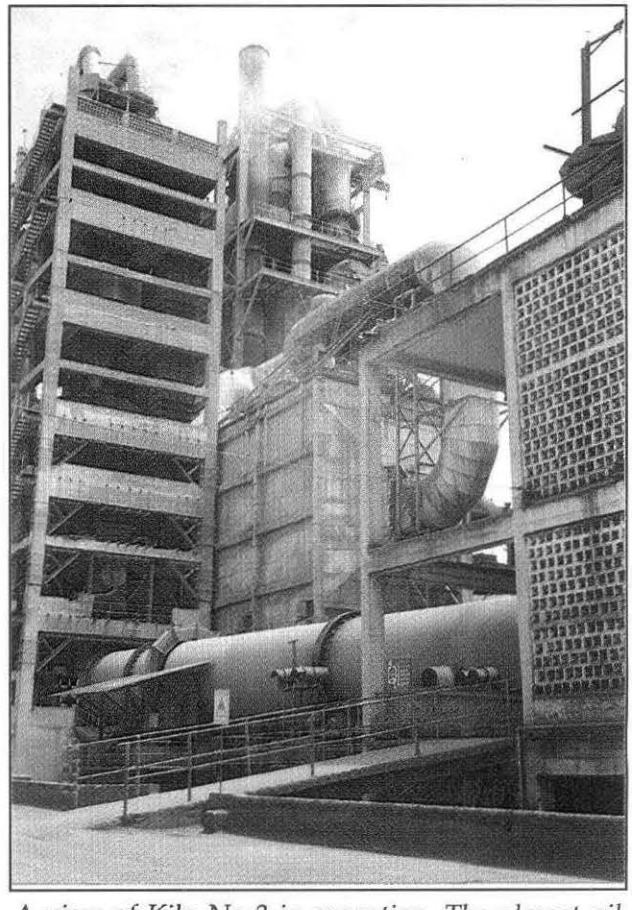
The well planned and continuous efforts of Mysore Cements Ltd (MCL) over the years have earned their Ammasandra plant the distinction of one of the environmentally best managed cement plants.

Continuous upgradation

The plant has a complement of high-tech dust control equipment, such as ESP's, bag filters (mechanical and pulse-jet types) and cyclones, at various sections. These are periodically upgraded to induct latest advances in technology. Thus MCL was the first in India to go for multi-pulse generation hot ESP for kiln exhaust gases. The ESP installed on Kiln No. 3 (*see* photograph) has a dust collection rate of 8 to 9 tons /hour. New generation microprocessor-based ESP controllers have been installed on Kiln No 4, cement grinding mills and raw mills. Clinker coolers of Kiln No 3 and 4 are provided with EPIC – controller based ESP. Open-type ESP is installed at coal grinding unit. Among other improvements is the use of special type of nozzles for atomisation of water in the pre-conditioning of exhaust gases from Kiln No 4; these help improve the efficiency of the pollution control equipment.

Plantation

At inception, in 1960 the region was barren without any trees. MCL then began an intensive programme of planting trees in the 280 acres of land belonging to it . As a result, today there are more than one lakh trees/plants in and around the plant, which has transformed the entire landscape. The beautiful parks developed and maintained around the plant and the township are a feast to the eyes of the visitors.



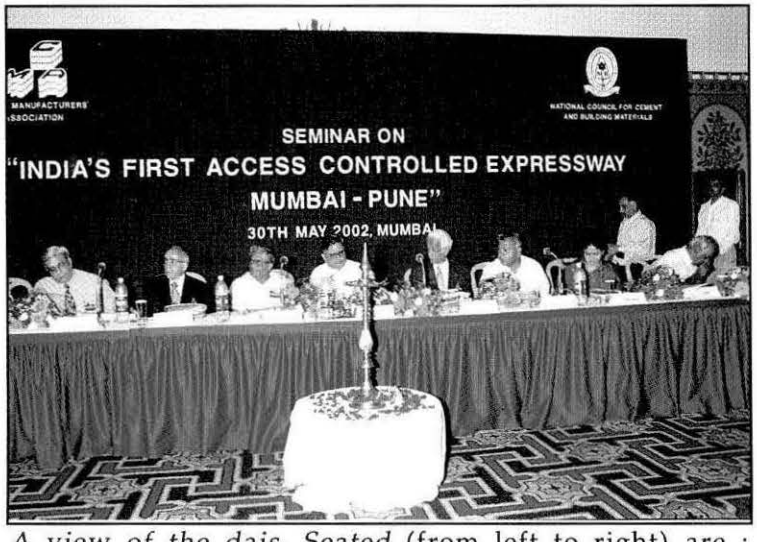
A view of Kiln No 3 in operation. The almost nil stack emission owes to the multi-pulse generation hot ESP which handles 3,54,000 m^3/hr of exit gas.

MUMBAI-PUNE EXPRESSWAY SHOWCASED

CMA Seminar on "India's First Access Controlled Expressway - Mumbai - Pune", organized in Mumbai on 30th May 2002, showcased the unique features of the prestigious six-lane 95-km Expressway which could well serve as a model for other Expressways in future. Dr. Raman Singh, Hon'ble Minister of State for Commerce and Industry inaugurated the Seminar as Chief Guest and Shri Vikramsinh Patankar, Hon'ble Minister for PWD, Government of Maharashtra presided over the function.

Dr. Raman Singh, Hon'ble Union Minister of State for Commerce and Industy, lights the ceremonial lamp to inaugurate the Seminar. Looking on (from left to right) *are Shri Balasaheb Shivarkar, Hon'ble Minister of State for PWD, Government of Maharashtra; Shri Vikramsinh Patankar, Hon'ble Minister for PWD, Government of Maharashtra; and Shri S.S. Momin, Joint MD, MSRDC.*

The Special Guests of honour and Dignitaries were Shri Balasaheb Shivarkar, Hon'ble Minister of State for PWD, Government of Maharashtra, Shri P.D. Karandikar, Vice Chairman & MD, MSRDC, Shri S.S. Momin, Joint MD, MSRDC and Smt. Renuka Kumar, Director, Department of Industrial Policy and Promotion, Union Ministry of Commerce and Industry.



A view of the dais. Seated (from left to right) *are : Shri P.D. Karandikar, Vice Chairman & MD, MSRDC; Shri B.L. Jain, Vice President CMA; Shri Vikramsinh Patankar; Dr. Raman Singh; Shri TMM Nambiar, President CMA; Shri Balasaheb Shivarkar; Smt Renuka Kumar, Director, Department of Industrial Policy and Promotion, Ministry of Commerce and Industry; and Shri SS Momin.*

The Seminar was attended by more than 170 delegates from all over the country representing public works departments of the Governments of Andhra Pradesh, Chhattisgarh, Maharashtra, Madhya Pradesh, Rajasthan and UP; several Municipal Corporations and State Road Development Corporations, National Rural Road Development Agency, National Highways Authority of India, State Bridge Corporations of Maharashtra, MP and UP, National Bank of Agricultural and Rural Development, American Concrete Institute, Indian Concrete Institute, major construction companies in state and private sectors, Central Railway, Mumbai Port Trust, HUDCO, major cement companies, NCB, reputed construction institutes and universities, reputed construction journals, etc.

Inaugural Session

In his inaugural address, Dr. Raman Singh underlined that cement was one of the core industries in the country absolutely essential for the country's health, as well as for our economy. He stressed that our per-capita consumption of cement, which was very low at about 100 kg, should go up to at least the world average of around 260 kg, and the dream of the Prime Minister for improvement of National Highway infrastructure on Golden Quadrilateral Highway Project and North-South, East-West corridors was becoming a reality and expected to be completed by 2003 and 2007 respectively by NHAI.

Front row of the audience. Seated (from left to right): *Smt Renuka Kumar; Shri Ram Lubhaya, Secretary PWD, Government of Rajasthan; Dr. SP Ghosh, Advisor CMA; and Shri AV Srinivasan, Secretary General CMA*

Shri T.M.M. Nambiar, President, CMA welcomed the guests and delegates. In his talk, emphasis was laid on importance of good infrastructure for the country to enable it to enter into the 21st Century. He also pointed out the vital role concrete roads could play in the upgradation of our existing infrastructure.

Shri P.D. Karandikar, Vice Chairman & Managing Director, Maharashtra State Road Development Corporation (MSRDC) spoke regarding the importance of uninterrupted flow of traffic, which can only be achieved by the construction of superhighways and expressways. He talked about the recently constructed Mumbai-Pune Expressway, which was the topic of the Seminar. He gave details of the problems faced and how they were overcome.

In his Address, Shri Balasaheb Shivarkar, Hon'ble Minister of State, PWD, Government of Maharashtra, spoke about the vital need for Maharashtra to modernise its road system. He also mentioned that it was not only in urban areas but also in rural areas where roads had to be upgraded and modernised. He added that concrete pavements were probably the best answer for both urban and rural roads in Maharashtra, since there was a high rainfall in almost the entire region, for which concrete pavement is the right answer.

Shri Vikramsinh Patankar, Hon'ble Minister, PWD, Government of Maharashtra gave the background to concrete roads in Maharashtra, stating that the State had long stretches of concrete roads even in the 30's and the 40's, some of which were still existing. He added that the time had come for building more concrete roads in the State.

After the Inaugural Address the Hon'ble Minister released two CMA publications:

1. India's First Access Controlled Expressway – Mumbai-Pune
2. Handbook of Ready-Mixed Concrete.

Vote of Thanks was proposed by Shri B.L. Jain, Vice President, CMA.

Technical Session

There were four speakers in the Technical Session, which was chaired by Shri S.J. Raina,

Director General (Actg), NCB. The first speaker was Shri S.S. Momin, Joint Managing Director, MSRDC who spoke on the subject of 'Mumbai-Pune Expressway – Why Cement Concrete Pavement Selected'. He explained in great detail as to the numerous problems drivers faced on the old Mumbai-Pune Highway (NH-4). The major problem was overcrowding, since the road carried more than five times the traffic for which it was designed. Another major problem was the frequent accidents caused due to the bad surface of the road and its poor geometrics. There were other problems also, such as landslides, especially during the monsoon. Shri Momin then went on to explain the procedure and the planning that went into the conception and designing of the Mumbai-Pune Expressway and gave detailed reasons as to why a concrete pavement was selected for it. These included minimal requirement for maintenance, a trouble-free smooth surface and a difference of only 6 per cent in the overall cost between a concrete road and a bituminous one.

Speaking next, Shri J. Ganguly, Vice President (Transportation & Projects), Larsen & Toubro Limited, dealt with the 'Challenges Faced and Solutions to Difficulties Encountered during Construction of Mumbai-Pune Expressway'. He began by giving details of the Expressway especially of the 31-km stretch that was constructed by L&T. He explained the reasons why concrete roads were superior to bitumen roads and went on to clarify as to where and when they would have the greatest advantage. He then enumerated the construction parameters and techniques used by L&T and gave details of their portion of the work.

The third speaker Shri S.G. Joglekar, Director & Vice President, Stup Consultants Limited spoke on the subject of 'Concrete Pavement of Mumbai-Pune Expressway – Design Approach, Quality Assurance and Results Achieved with Special Reference to Section – I: Kon to Chowk'. He gave the detailed background regarding the basic concept and proposal for the Mumbai-Pune Expressway and explained the factors that guided its design. He explained how they had to obtain foreign collaboration for its planning, since the existing AASHTO – based design system used in India did not cater for the expressway's 34-cm thickness and could not be extrapolated for the purpose. Hence, AASHTO used a British design method instead, which took into consideration the thickness required. He also elaborated how the expressway section from Kon to Chowk was constructed and how quality control was maintained during the work.

The last speaker Shri Ashok Kumar of Consulting Engineering Services spoke on the subject of 'Problems/Innovative Techniques adopted for Ghat Section of Mumbai-Pune Expressway'. He gave the background to the construction in the Ghat Section of the Expressway. He then went on to explain the problems faced due to the restricted Right-of-Way and numerous obstacles in their path, including unique ones, such as electric pylons, oil pipelines, old bridges cutting across the existing Mumbai-Pune Expressway (NH-4) without inconveniencing the heavy traffic using the road. He spoke about how they used high gabion walls, split carriage-way and stabilization of the soil to facilitate their work while keeping open the flow of traffic and maintenance work on the road.

The four speakers then answered questions from the audience about difficulties faced in the execution of the project, management of cost and time targets and future projections on similar projects.

Visit to the Expressway

The Seminar was rounded off by a visit to the Mumbai-Pune Expressway. During the visit, the control structure for traffic monitoring by CCTV was explained, problem areas and how they were overcome were shown on the ground, and delegates were introduced to modern road-building techniques.

DESIGN OF BUCKET ELEVATOR FOR A CEMENT PLANT – A Software Solution

S. Malayappan & H. Kanagasabapathy
National Engineering College, K.R. Nagar, Kovilpatti

The paper reports an actual study conducted in a large cement plant located in southern Tamil Nadu for replacing the plant's present pneumatic conveyor system, which transports the raw meal from the roller mill to the storage (blending) silo over 90 meters height. In place of the existing pneumatic conveyor system, a bucket elevator system is designed using Visual Basic as front-end tool. It is estimated that the new system would require only 100 kW/hr power as against 500 kW/hr....Ed

Introduction

Materials handling is an art as well as science of moving, packing and storing of substances in any form. In a cement plant many types of materials handling system (MHS) are used. Though ideally speaking, there should be minimum MHS's in any well-planned industry layout, in practice the share of MHS on total investment in any industry amounts to well beyond 60 per cent. Indeed MHS's play a vital role in almost all engineering industries, in particular, process industries which need to go for a planned, economical MHS's. The various factors which affect the selection of a MHS are :

(i) Initial investment,

(ii) Maintenance cost,

(iii) Power/fuel consumption, and

(iv) Versatility and other factors like the material(s) to be handled, its (their) volume, etc.

In this background, a study was undertaken on the possibility of replacing the pneumatic conveyor system working in a large cement plant by a bucket elevator system. The MHS in question is used for transporting the raw meal from vertical roller mill to the storage silo through 90 m height. The data of the pneumatic system are as follows :

Total length of the conveyor	=90m
Diameter of the conveyor tube	=0.652m
Capacity of the conveyor	=300 tons/hr
Specific weight of the particles	=1.15 tons/m^3
Lifting height	=90m
Present power consumption of the system	=532.07 kW

Design of Bucket Elevator System

A CAD program for the bucket elevator system was developed in Visual Basic and the following codes give the software design for the same.

```
Private Sub Command 1 Click()
BCAP = (0.24 * CAP)
VEL = (0.019 * H)
PIT. Text = Format (((2.7 * BCAP * VEL*DEN)/CAP), "# # # #. # #")
```

```
BHT.Text = Format ((PIT/4), "# # # #. # #")
BUW.Text = Format ((2.5 * BHT), "# # # #. # #")
BBB.Text = Format ((0.425 * BHT), "# # # #. # #")
H1.Text = Format ((0.375 * BHT), "# # # #. # #")
H2.Text = Format ((0.625 * BHT), "# # # #. # #")
H3.Text = Format ((0.5125 * BHT), "# # # #. # #")
H4.Text = Format ((049375 * BHT), "# # # #. # #")
BBT.Text = Format ((BHT/106.67), "# # # #. # #")
TDT.Text = Format ((0.0133 * H), "# # # #. # #")
TDL. Text = Format ((, 1.292 *. TDD), "# # # #. # #")
BL.Text. = = Format (((2 * H) + 3.14 * TDD)), "# # # #")
n. Text = Format ((BL/PIT), "# # # #")
MTI = (BCAP * n * DEN)/ 1000
NBR = (CAP/ MTI)
ODRD = (3.14 * TDD)
NDRBR = (BL/ODRD)
V2.Text = Format (((NDRBR * NBR)/60), "# # # #. # #")
SR.Text = Format ((V1 /V2), "# # # #. # #")
BWPM = (0.22944 * H)
BW.Text = Format ((0.0412 * BWPM), "# # # #. # #")
BT.Text = Format ((0.01765 * BW), "# # # #. # #")
BWT.Text = Format ((BWPM * BL), "# # # #. # #")
BUWT.Text = Format ((0.9685 * BWPM), "# # # # ")
TBWT = (n * BUWT)
MWT = (0.375 *n * BCAP *DEN)
TSL + (2* (BWT + TBWT + MWT))
MLP = (CAP * H) / 367
FOP = (0.07 * MLP)
MPWM = (BWPM + (TBWT / BL) + (MWT / BL))
DWMP = (0.000000687 * MPWM * BCAP * H)
TP.Text = Format ((MLP + FOP + DWMP), "# # # #. # #")
MP.Text = Format ((1.26 * TP), "# # # #. # #")
MBM = (TSL * TDL) / 2
TSD. Text = Format ((0.1895 * (((1.5 * MBM * 10000)^2) + ((9.55 *
                        TP * 1000000 / V2)^2)) ^ 0.167), "# # # #. # #")
d. Text = TSD
OD.Text = Format ((1.79 * d), "# # # #. # #")
E.Text + Format ((1.192 * d), "# # # #. # #")
B.Text = Format ((0.0292 * d), "# # # #. # #")
r. Text = Format ((0.0292 *d), "# # # #. # #")
End Sub
```

The software calculates all the relevant data required for the bucket elevator system, including the motor power to run the handling system.

Conclusion

From the software solution, the power requirement for the proposed bucket elevator system to transport 300 tons/hr raw meal from the vertical roller mill to the storage silo through a height of 90 meters is calculated to be 78.99 kW and the motor power required is 99.77 kW. This is only 1/5th of the power required for the existing pneumatic system. Other advantages of the bucket elevator system are :

- It requires less investment compared to pneumatic system,
- It is suitable for even moist and sticky materials, and
- There is no limitation on the height over which to be conveyed

The software developed can indeed be effectively used in any industry for designing a bucket elevator material handling system, if the following inputs can be given :

(i) Bucket elevator capacity required in tons/hr,

(ii) Conveying material density in tons/m^3

(iii) Height to which to be lifted in meters and

(iv) Bucket material density in kg/ m^3

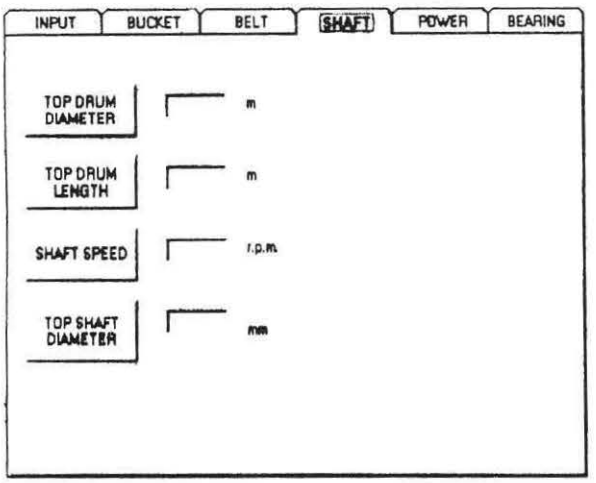
References

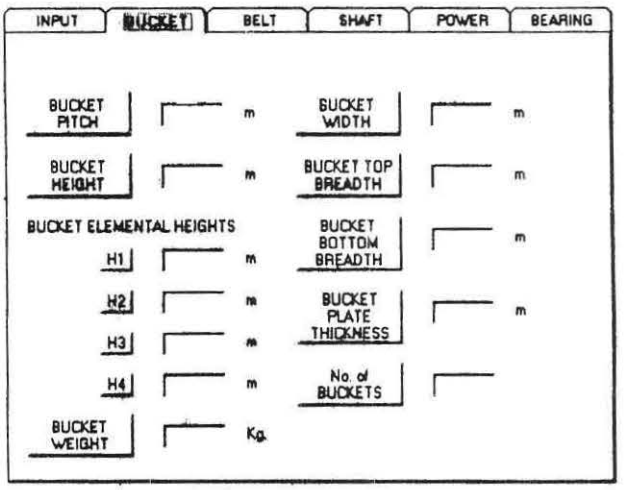
1. Perry H John, Chemical Engineer's Handbook, First edition 1980.
2. Materials handling handbook, Second edition, 1984.
3. Mechnaical Engineers Handbook, Third edition, 1987.
4. PSG Design Data book, Latest edition.

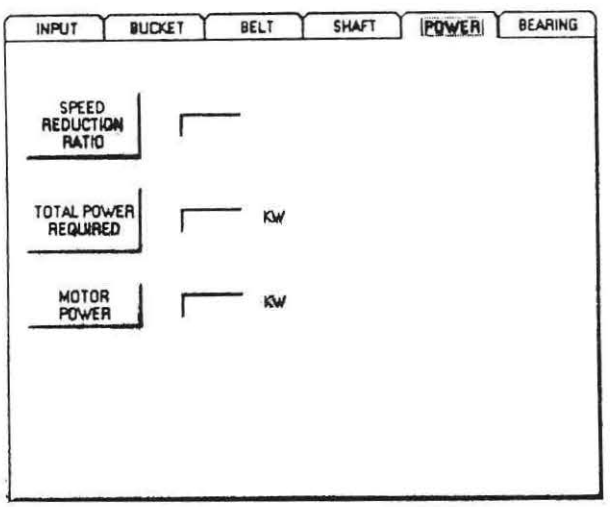
Nomenclature

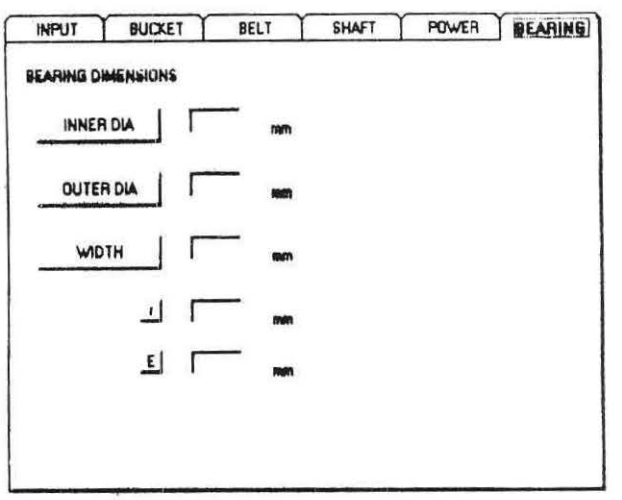
BCAP	=	Bucket elevator capacity in litres
VEL	=	Belt velocity in m/sec
H	=	Lifting height, m
PIT	=	Bucket pitch, m
BHT	=	Bucket height, m
BUW	=	Bucket width, m
BTB	=	Bucket top breadth, m
BBB	=	Bucket bottom breadth, m
BPT	=	Bucket plate thickness, m
TDD	=	Top drum diameter, m
TDL	=	Top drum length, m
BL	=	Belt length, m
N	=	No. of buckets
MTI	=	Material transported in one belt revolution, tons
NBR	=	No. of belt revolutions/hr
ODRD	=	Displacement for one drum rev, m
NDRBR	=	Number of drums, rev./belt rev
V_2	=	Shaft speed, rpm
SR	=	Speed reduction ratio
BWPM	=	Belt weight/ m
BW	=	Belt width, m
BT	=	Belt thickness, m
BWT	=	Belt weight, kg
BUWT	=	Bucket weight, kg
TBWT	=	Total buckets weight, kg
MWT	=	Material weight, kg
TSL	=	Top shaft load, kg
MLP	=	Material lifting power, kW
FOP	=	Power to overcome friction, kW
MPWM	=	Moving parts weight,/length, kg/m
DWMP	=	Power for moving dead weights
TP	=	Total power, kW
MP	=	Motor power, kW
MBM	=	Maximum bending moment
TSD	=	Top shaft diameter, m

OUTPUT DIALOGUE BOX









INDIAN CEMENT PLANTS' SUCCESS STORIES IN ENERGY AND ENVIRONMENT - An Update

Cement, Energy and Environment has been featuring success stories of Indian cement plants in the fields of Energy Conservation and Environmental Improvement from time to time since 1999. So far, nine plants have reported their achievements in Energy Conservation and 11 in Environmental Improvement as detailed below in reverse chronological order :

Energy Conservation

ACC, Madukkarai	*Vol 5; No 2; Apr 2001; pp 3-9*
Vasavadatta Cement, Sedam	*Vol 4; No 2; Apr 2000; pp 14-18*
Durgapur Cement, Durgapur	*Vol 3; No 4; Oct 1999; pp 5-7*
Lakshmi Cement, Jaykaypuram	*Vol 3; No 4; Oct 1999; pp 1-4*
Mangalam Cement, Morak	*Vol 3; No 3; July 1999; pp 1-3*
Mysore Cements, Ammasandra	*Vol 3; No 1; Jan 1999; pp 1-3*
Rajashree Cement, Aditya Nagar	*Vol 3; No 1; Jan 1999; pp 4-5*
Shree Cement, Beawar	*Vol 3; No 2; Apr 1999; pp 8-12*
Vikram Cement, Vikram Nagar	*Vol 3; No 2; Apr 1999; pp 1-3*

Environmental Improvement

Manikgarh Cement, Gadchandur	*Vol 6; No 2; Apr 2002; pp 7-14*
Mysore Cements, Ammasandra	*Vol 6; No 2; Apr 2002; p 15*
L&T Awarpur Works	*Vol 6; No 1; Jan 2002; pp 12- 14*
Binani Cement, Binanigram	*Vol 6; No 1; Jan 2002; pp 15-22*
Century Cement, Baikunth	*Vol 4; No 4; Oct 2000; pp 1-8*
India Cements, Chilamkur	*Vol 4; No 4; Oct 2000; pp 22-25*
J.K. Cement, Nimbahera	*Vol 4; No 3; Jul 2000; pp 1-5*
Lafarge India, Sonadih	*Vol 6; No 4; Oct 2000; pp 9-13*
Madras Cements, Alathiyur Works	*Vol 4; No 4; Oct 2000; pp 14-21*
Vasavadatta Cement, Sedam	*Vol 4; No 3; Jul 2000; pp 5-6*
Vasavadatta Cement, Sedam	*Vol 4; No 2; Apr 2000; pp 14-18*
Lakshmi Cement, Jaykaypuram	*Vol 4; No 1; Jan 2000; pp 1-3*

***This being a continuous process, other cement plants also are requested hereby to share their achievements likewise through the forum of* Cement, Energy and Environment.**

For those wishing to complete their collection, CMA is in a position to supply the missing issues, on cost basis, at the rate of Rs 250/ copy. Please notify your requirements early since only limited copies are left. All correspondence in this regard to be addressed to ***Secretary General, Cement Manufacturers' Association, Vishnu Kiran Chamber, 2142-47 Gurudwara Road, Karol Bagh, New Delhi.***

MADRAS CEMENTS' ALATHIYUR WORKS GETS ISO 14001 ACCREDITATION – The Tally moves up to 34 cement plants

Alathiyur Works of Madras Cements received ISO 14001 Certification for Environmental Management Systems on 29th March 2002. Granted by the Bureau of Indian Standards, the licence covers all activities of the Alathiyur Works comprising the manufacture and supply of cement of different grades, and the mines. It will be valid for a period of three years, i.e. up to 28th March 2005.

This takes the tally of cement plants with ISO 14001 accreditation to 34. Since our last reporting (*Vol 5, No 3, p13*), the following six plants have obtained the accreditation :

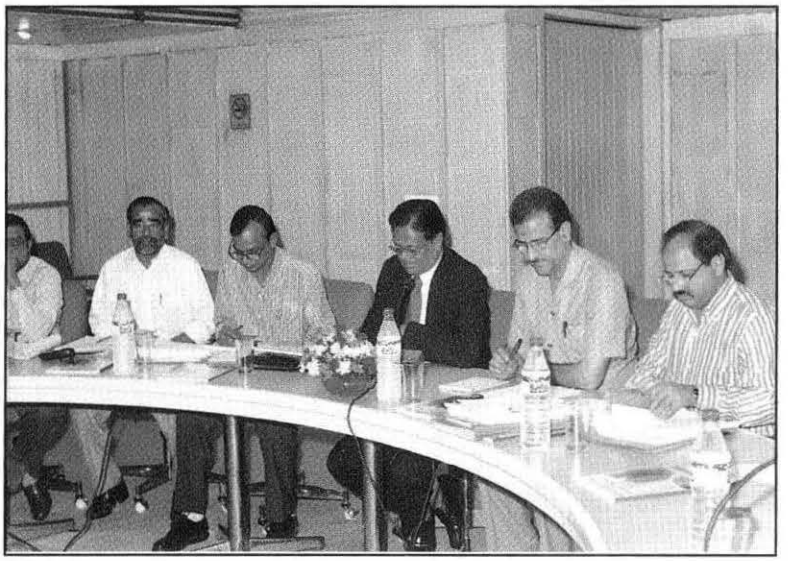
ACC – Chanda
Grasim Cement
Kesoram Cement
L&T, A.P.
Manikgarh Cement
Shriram Cements

BINANI CEMENT'S QUALITY CIRCLE BAGS NCQC'S MERITORIOUS PERFORMANCE AWARD FOR 2001

The "Oorjatherm" Quality Circle of Binani Cement's Thermal Power Plant received the Meritorious Performance Award for the year 2001 at the National Convention of Quality Circles (NCQC) held in Secunderabad during 20th – 23rd December 2001. The Award was in recognition of the presentation made by Oorjatherm Quality Circle among some 272 presentations by the Quality Circles from different industries all over India including well known companies like BHEL, NTPC, Tata Steel, Sundaram Clayton, Hindalco, etc. Another case study by the 'Pratap' Quality Circle of the Mines & Crusher Section of Binani Cement's Plant, recommended for presentation by NCQC's local chapter of Rajasand, Rajasthan also received high appreciation at the Convention.

FOUR JOINT NCB-CMA PROGRAMMES CLEARED BY NCB'S RESEARCH ADVISORY COMMITTEE

At its 58th meeting held on 21st March 2002 in New Delhi, the Research Advisory Committee (RAC) of the National Council for Cement and Building Materials (NCB) cleared a number of R&D projects funded from Cement Cess and Plan Grant. The Committee also approved the following programmes to be jointly executed by CMA and NCB :



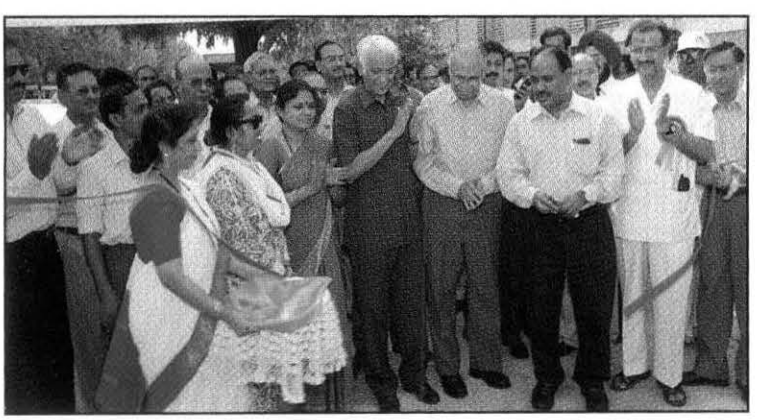
NCB Research Advisory Committee Meeting in progress. At centre is the Chairman Shri L. Saberatnam. To his left is Shri S J Raina, Director General (Actg), NCB.

(i) Use of flyash and flyash-based portland pozzolana cement in reinforced concrete construction (in collaboration with CMA, Central Building Research Institute (CBRI), Roorkee; Central Road Research Institute (CRRI), New Delhi; Central Electrochemical Research Institute (CECRI), Karaikudi - PDD-01/02

(ii) Model construction of 2-km stretch concrete roads in each of three selected States located in coastal, hilly and plains regions - CTM-02/02

(iii) Benchmarking and rating of performance indicators for continuous improvement in energy conservation and environmental performance in the Indian cement industry - PON-02/02.

(iv) Measurement of NOx and SO_2 emissions in cement plants for formulation of emission norms - ENV-01/02



Ceremonial opening of the experimental stretch of Fujibeton stabilised soil cement road laid at NCB Complex. Cheering the event are : (from centre to right) *Shri TMM Nambiar, Chairman NCB and President CMA; Shri V. Suresh, CMD HUDCO; Shri S Jagadeesan, Jt. Secy to the GOI, Ministry of Commerce and Industry; Shri SJ Raina Director General (Actg.) NCB; and AV Srinivasan, SG CMA*

The Meeting, piloted by RAC Chairman Shri L. Saberatnam, CEO, India Cements Ltd, was attended by more than 35 representatives from the cement industry, construction agencies, allied research institutes, reputed consultancy firms and senior scientists from NCB.

PNEUMATIC CONVEYING: OUTSIDE THE BOX

Jim Ketcham, Cyclonaire Corporation, USA,

Anyone who has been involved in the design or selection of material handling systems for cement or flyash has faced the same decisions: mechanical or air conveying; screws and buckets or blowers and airlocks; medium or high-pressure blow pots or possibly screw pumps? When comparing equipment prices, one should not forget to include maintenance costs when evaluating any conveying system. Whatever choices are made are no doubt based on experience with similar equipment, knowledge of the application and vendor recommendations.

Material characteristics play an important role in what type of conveyor system to choose. Dry powders, granules, pellets and similar products are good candidates for either mechanical or pneumatic systems.

Mechanical conveyors work well for conveying high volumes of material over a short distance to a single destination. Screws, buckets and belts are not necessarily designed to be leak free, and material may migrate out onto the ground and surrounding equipment.

A pneumatic system may afford the best solution for unloading cement or flyash from hopper-bottom railcars or trucks and conveying the material over a long distance to multiple storage silos. For this type of application, the mechanical conveying system would be quite complex, as well as expensive to purchase, install and maintain. The pneumatic system is cleaner, requires less maintenance than mechanical system and can easily accommodate changes in direction, long conveying distance and multiple material destinations.

Cement, a fine powder that fluidises easily and retains aeration, is our friend from a pneumatic conveying standpoint. This means that when air is introduced into the material, it behaves more like a liquid than a solid. When it is in this fluidised state, it can be pumped with air and will flow through the conveying piping. The concrete industry as a whole has used one of two basic pneumatic conveying principles through the years, dilute phase or dense phase. The terms 'dilute' and 'dense' refer to the amount of material in a cross-section of the conveyor line while being conveyed, and are based on different concepts of air velocity and pressure. Both applied in various applications for cement and flyash and bring with them their set of advantages and disadvantages.

Courtesy : World Cement, Mar. 2002,
Pp. 68-74, Enquiry no. 8.
Email: mail@worldcement.com
Web: www.worldcement.com

ACC BUILDS THE BIGGEST KILN IN INDIA

In April last year, when the Associated Cement Companies Limited (ACC) lit the flame at their new Green-field plant in Wadi, they not only became India's largest cement producer, but also started up what is eventually to become the world's largest kiln system with a daily capacity of 12,000 tonnes.

Back in 1996, ACC contacted F.L. Smith and its long standing partner Larsen & Toubro (L&T)

with a view to building a 10,000 tpd cement production line. Launched in early 2000, the project was divided into two phases to match the development of the accompanying infrastructure and the growth in demand for cement.

The first phase comprises a complete production line with a guaranteed throughput of 5,000 tpd, although the machinery is designed to handle 6,000 tpd. Kiln, kiln hood and cooler have been dimensioned from the start for the eventual daily throughput of 12, 000 tonnes. F. L. Smith and L&T have together supplied equipment for all sections of the plant.

Phase two is duplicate of phase one and mirrors it so that the two preheater towers are located side by side, feeding the same kiln. Each preheater system will have two strings with an SLC calciner, and the two systems together will have 24 cyclones and two 6x17 metre calciners once the whole project is finished. The second phase was planned to start up two years after first flame at phase one.

Courtesy : Highlights Apr. 2002, P 14,
Fax: +4536301820
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Web: www. flsmidth.com

THE EFFECTS OF THE ALKALI CHLORIDE CIRCULATION ON THE FORMATION OF THE KILN RINGS

B. Omur SENSOZ Ve Selcuk YALCIN

In this study the effect of rings and their formation kinetics are investigated. For this purpose, the samples from raw materials, cyclones and ring formation were taken consequtively to analyses. It was observed that, the alkali oxides and the chloride concentrations were getting higher in the raw materials from the beginning to end of the cyclones. Increases were about 1.65 times for Na_2o, 3.1 times for K_2O and 20 times for chloride concentrations. It was also found that, the ring formations at sinter zone were containing spurrit minerals $Ca_5(SiO_4)_2CO_3$, free calcium oxide, calcium carbonate, some silicates, and high chloride after analysing it by x-ray diffractometer. At the end of this study it was agreed that the most important cause for the ring formation was transportation of liquid cells of the alkali chlorides to the sinter zone.

Courtesy : Cement and Concrete World,
Cimento ve-Beton DUNYA SI, Jan. Feb.2002, Pp. 32-40.
Fax: (90312) 287 9272
Email: info@tcma.org.tr
Web: www.tcma.org.tr

PRODUCTION PROCESS OF HIGH VOLUME MINERAL ADDITIVE ECO-CEMENT: PART I – RESEARCH BACKGROUND

Konstantin Sobolev, European University of Lefke, Civil Engineering Department, Lefke, TRNC

Metin Arikan, Middle East Technical University, Civil Engineering Department, Ankara- Turkey.

This paper presents a new approach to the production of High Volume Mineral Additive (HVMA) cement. HVMA cement technology is based on the intergrinding of portland cement clinker, gypsum, mineral additives, and a special complex admixture, Supersilica. This new method increases the compressive strength of ordinary cement to 140 MPa and also permits the utilization of a high volume (up to 60%) of inexpensive indigenous mineral additives in the cement.

The research results demonstrate that a high volume of natural materials (alumosilicates, limestone, sand, natural pozzolans) and industrial by-products (granulated blast furnace slag, fly ash) and waste (chemical wastes, broken glass and ceramic) can be used as mineral

additives in HVMA cement. The maximum quantity of mineral additives in HVMA cement depends on the type of mineral admixtures and its desired strength/durability level. The optimization of the composition of HVMA cement allows the production of cement with maximal strength and at minimal cost. The feasibility analysis demonstrated the opportunity of a profitable production of HVMA cements in industrial scale.

In the past 25 years, there has been considerable interest in developing new construction materials incorporating industrial by-products and waste (IBPW). Accompanying industrialization the volume of IBPW has significantly increased and will dramatically expand in the future creating a number economical and ecological problems. Consequently, there is a demand for the development and application of new technologies to reduce IBPW and transform it into useful products. The process named 'high performance cement technology' was found to be very effective for the utilization of IBPW in high volumes.

A newly developed technique using a special admixture during the cement grinding process helps to significantly improve the properties of ordinary cement. This approach resulted in the formulation of a new high-tech product. High Performance (HP) Cement. The main idea of HP Cement is the addition of a new reactive silica-based complex admixture (Supersilica) during the grinding of the portland cement. Thus, in the case of HP Cement, the clinker is ground in a ball mill together with mineral additives, gypsum and Supersilica. The resulting cement is then available for producing a wide range of concrete including high-performance concrete.

As a result, HP Cement can be made to order from super strong cements with rugged durability to low cost cements with up to 70% mineral additives. To use a high volume of inexpensive mineral additives (sand, limestone or various industrial by-products) has an important economic and ecological impact.

Courtesy : *Cement and Concrete World, TCMB Jan. Feb.2002, Pp. 54-61. Email: info@tcma.org.tr Web: www.tcma.org.tr*

MULTI-COMPARTMENT MIXING SILO FOR SPECIAL CLIENT-ORIENTED CEMENTS

H.W. Billhardt, Erwitte, M. Rammele, Hamburg/ Germany

Over the last six years cements with several main constituents have increased their market share in Germany from less than 10 to over 23%. Portland slag cement and Portland limestone cement together make about 92% of all composite cements. These types of cement are also regarded as an important part of the product range of special cement in Erwitte. A multi-compartment mixing silo was built so that in future clients would be provided with a better service for special mix formulations. There was an inauguration ceremony for the plant in August 2001 on the company's 75th anniversary. The largely automated cement despatch and quality-assured cement production systems are regarded as an indication of the way ahead. This was essentially a matter of being able to produce special cement mix formulations to meet clients' requirements. Such demands exist, for example, for the production of sprayed cements and tunnel cements. These cements contain a slag content adapted to suit the weather to ensure a uniform heat of hydration and an equal setting time in summer and in winter. The company is capable of producing a large number of mix formulations by mixing separately ground constituents. The mixing silo was designed for

a throughout of 100 000 t/a to meet the future demand for special cements over the coming years. Over 100 mix formulations and sequences can be preset and stored. Direct production of special mixes for particular requirements is also possible on a "just in time" basis.

Courtesy : ZKG International,
No. 12/2001 (Vol. 54), Pp 655- 57.

WHAT IS "MOBILE'?

Brian Flynn, MMD. UK.

The dictionary definition of the world mobile is 'movable or easily moved', but what it means to mine operators with respect to crushing systems varies almost as much as the materials that are extracted.

One of the first mobile systems supplied by the MMD Group of Companies was for a lignite operation in northern Spain. The existing mobile crusher employed to handle overburden in the mine was a 1000 tph gyratory unit with a separate truck bridge. These units were moved using a 600 t capacity tracked transporter and each took approximately 3 days to relocate to the next level down (approximately 20m).

The method of operation at that time was to work on two levels, one in the winter and a lower level in the summer due to the level of the water table at the quarry. To achieve this, a series of fixed and quick assembly belt units were used, which were erected in advance of the breaking units so that the change from one location to the next required the minimum disruption to production.

The latest development has been the purchase of a track mounted system based on the 1000 series sizer fitted with three tooth rotors, which can handle the bigger harder lumps encountered in the bottom level of the quarry.

The most recent mobile unit supplied by MMD was to a lime-stone quarry in Spain. It has a deposit in a hillside, which means they have a high multibench system. Material is pushed from the higher bench levels to the bottom bench.

The definition of mobile means the complete plant can be relocated within the quarry in one day. There are a number of key features that make this possible. The primary unit is a wheel mounted 750 system fitted with three tooth rotors and powered by a diesel engine, which is not unusual where the mains power supply is limited.

What of the future? The company has designed and built a fully mobile unit, which has a design capacity of 10 000 tph with an approximate weight of 1500 t. It combines an apron plate feeder, sizer and slewing elevating discharge conveyor mounted on a turn table. The whole unit is mounted on tracks, which allow it to move in conjunction with the large rope shovel feeding the unit. This unit is to replace a bucket wheel excavator and will discharge onto an existing belt conveyor system.

Maybe now an alternative definition of 'mobile' should be 'not fixed'.

Courtesy : World Cement Apr. 2002 Pp 92-94,
Enquiry no: 20
Fax: +44(0)1252718992
E-mail: mail @ worldcement.com
Web: www. worldcement.com

SEEING THE PROCESS FROM A DIFFERENT ANGLE

F. L. Smidth's Customer services Department introduced a new service concept under the name of Process Maintenance Technology (PMT) (see Highlights October 2000). Under the new concept each customer is assigned a

particular specialist acting as a gateway to F. L. Smidth and ensuring that swift action is taken in case of specific operational problems.

All plants can be optimised, and the plant operating staff often need a sparing partner to see things from a different angle.

The process is something different, because it reflects so many parameters and there are often just as many opinions on what should be done to improve performance. "The fact that the plant is running does not mean that production could not be increased or energy consumption could not be reduced by doing things differently. These issues are much more difficult to tackle, but this is where our expertise comes in."

Addressing these issues requires expertise and a professional approach. Process Maintenance Technology is now a well-established service concept that is proving its worth.

It is obviously in the interest of plant managers to adopt a service concept that ensures maximum availability of the production facility so that the planned production targets are maintained.

Process maintenance helps to prevent costly downtime and production losses, although these savings are difficult to measure because one cannot quantify an expense that has not been paid for.

Courtesy : *Highlights Apr. 2002, P15*
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INTRODUCING ONLINE MAINTENANCE OF CEMENT PLANTS

Tomorrow's cement plant projects will focus not only on the tangible machinery supplies, but also to an increasing extent on value-adding services such as operation and maintenance management systems. Cement manufacturers are naturally demanding solutions that give them the highest return on their production activities, and an integrated cement plant project is the answer to their needs.

An integrated cement plant project includes the rapidly growing use of the internet and web-based systems. F. L. Smidth has developed a framework concept of online maintenance called Enterprise Asset Maintenance (EAM). F. L. Smidth EAM is based on standard system, MAXIMO, which is developed by MRO and is well-known throughout the cement Industry. The framework concept has been tested over a ten month period at Aalborg RCI White Cement in Malaysia.

The F. L. Smidth EAM concept offers the added advantage of giving users access to troubleshooting support and assistance in connection with maintenance and IT questions. Three MRO support centres in Australia, UK, and USA provide 24-hour online support with the MAXIMO system.

Courtesy : *Highlights April 2002,*
F. L. Smidth Pp20- 21,
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FUTURE TECHNOLOGIES

Battelles Website, Mar 2001

Some of the most economical and impactful energy innovations, as predicted by Battelle, a world renowned technology organisation based in Columbus, Ohio, by the year 2010 are:

1. Distributed Power Generation

Some experts are of the view that the current national power grid may not be able to meet skyrocketing demand. Power grids of this scale are on the way out. Major blackouts due to

storms and overloading of the grid will become a thing of the past. People and businesses are demanding more reliable power sources. The economic cost of power disruption in information-driven business like finance and e-commerce, is extremely high. Power may be generated locally for neighbourhoods and individual residences and businesses. This will be done via micro-turbines, internal combustion engines and fuel cells. There will be an increased use of natural gas because it's cheap, clean and available.

2. Fuel Cells

There has been a lot of progress in fuel cell technology over the past ten years, but much more need to happen over the coming decade. Fuel cells will become increasingly popular for transportation and for portable and stationary power generation over the next decade. These systems will provide power at competitive rates while drastically reducing the impact of power generation on the environment. According to Energy Science Technology division of Pacific Northwest National Laboratory, fuel cells would be accepted by the public if they are made smaller and cheaper.

3. Gas to Liquid Conversion

Scientists predict the development of chemical engineering processes to transform hydrocarbon compounds from gases to liquids. This will permit more flexible use and storage of fuels, e. g. conversion of natural gas to diesel fuel for transportation. Gas to liquids technology offers an exciting, economically attractive opportunity to convert natural gas from remote locations, which otherwise would be wasted, into easily transported and inherently clean fuel.

4. Advanced Batteries

Batteries will continue a 20-year trend of advancements into the next decade. These next-generation batteries will be based on lithium polymer technology and have about three times as much energy capability as those currently on the market. These developments will play a more crucial role as the transition is from hybrid to electric vehicles. Consumers also will see better batteries for laptop computers and cell phones.

5. A Shifting Energy Industry Structure

Substantial innovations in the energy industry and energy technologies are occurring. Deregulation of the natural gas and electric utilities will continue, resulting in more competition and more mergers. Small, independent utilities. Oil companies will become energy markets. New players, such as automobile companies, may emerge as formidable influences in the energy industry. The convergence of the electric, gas, telecommunications and water industries likely will result in one-stop shopping.

6. Hybrid Vehicles

With $2 a gallon prices still fresh in the minds of consumers, the idea of hybrid vehicles doesn't sound bad. Mile-age of seventy-miles-per-gallon will create a lot of converts. The first generation of these vehicles is already here in a sporty two-seater car from Honda. Hybrid vehicles use smaller, more efficient internal combustion engines and use power from electric batteries for an extra boost during acceleration. According to Oak Ridge National Laboratory, US automakers have produced a next-generation of hybrid concept cars that will pave the way for 80 mpg, five-passenger sedans. However, while making progress in the next ten years, full transition may require decades.

7. Methane Hydrate Crystal Mining

Geologists have discovered rich deposits of frozen natural gas crystals on the ocean bottom.

Tapping this reserve would be a quantum leap to provide energy for the future. Although some new government programs are exploring recovery methods and associated ramifications, however, there haven't been any commercial attempts to retrieve this vast reserve. It is expected that this energy source will emerge in the next decade to add to natural gas production.

Courtesy : WISTA INNOVATION , May 2002 , P 18
Fax: 91-11-4619083,
E mail: witt@nde. vsnl.net. in
Web: www. wits. org

TECHNOLOGY UPGRADATION

PROCESS AND OPERATION

BLENDING TACTICS

Dr. Michael Clark

Questions to the Technical Forum this month have prompted thoughts on the tactics used in operating a reclaimer on a blending bed. Cement companies install blending beds with stackers and reclaimers with the aim of reducing the variability of their kiln feed raw mix, and in general these blending beds do a good job. However, they do suffer problems of segregation of the material and this manifests itself in two ways.

Courtesy : International Cement Review, Mar. 2002, P –74.
Email: info@CemNet.co.uk
Web: www.CemNet.com

TERMINAL TECHNOLOGY

Mario Rammele, IBAU HAMBURG, Germany

Today's high efficiency cement distribution terminals require advanced technology. High efficiency terminals are fully automated and need no cement reclaiming by front-end loaders or other non-advanced systems. The terminal type can be either a concrete silo, dome storage system or other non-advanced system or flat storage installation. With fluidslide systems the cement can be completely discharged from the storage facility. Depending on its purpose the storage facility is combined with ship loading/ unloading systems and truck/railcar loading/ unloading systems. Mechanical mixers are also integrated to produce different types of cement from the cement raw materials. The majority of the world's cement market is dominated by bags, packers, and palletisers, therefore these requirement are also integrated into the terminal. IBAU HAMBURG combines mechanical and pneumatic designs that best fit the specific project requirements.

Dome silos have become popular for storing a single type of cement. The ground area, and also the requisite construction time, lie between those for cone silos and flat storage systems. Separate buildings are required both for cement loading and for packing. At some sites converted oil tanks have also proved successful for cement storage. Nowadays instead of mechanical systems, fluidslide systems are used for cement discharge. IBAU HAMBURG has equipped a dome silo for Glenn Falls, Lehigh Cement in Allentown, US. The 42 m dia silo has a capacity of 44 000 t. The silo bottom consists of three aeration levels with different sectors to allow a discharge of 400 tph and an emptying degree above 97%. Only 0.16 kWh/t are required for

the fully automated and nearly maintenance-free silo discharge. Downstream bulk loading silos are fed via a bucket elevator.

Flat storage terminals are best suited for medium to long tern service. Most common storage capacities range from 10 000 up to 25 000 t. This is a low cost solution, especially when an existing warehouse building can be converted into a material storage installation or when the buildings later need to be used for other purposes.

Courtesy : World Cement, Mar. 02, Pp. 75-86, Enquiry no. 9. Email: mail@worldcement.com Web: www.worldcement.com Fax: +44(0) 1252 718992

RESISTING WEAR EROSION

Pankaj Jain, Wearesist Technologies Pvt. Ltd., India.

In a cement plant a major chunk of the energy bill is from power consumed by cement mill grinding. Cement original equipment manufacturers (OEM) have been continuously upgrading technology to reduce power consumption. One of the best commercial technology developed for achieving this is a combination of high pressure rolls known as the roller press. Actual experience has shown that for a cement unit of 1180 tph capacity, a mill circuit consumes approximately 33 units of same capacity mill only 27 units of power per t of cement will be used by a roller press. This implies a power saving of 6 units of power per t of cement produced.

Another advantage of using this concept is that once coupled with conventional tube mill the output can be more than double. The third advantage is in the reduction in the cost of maintenance or downtime of the mills. For example, the cost of mill liners/t of cement produced, weighs in favour of the roller press. The wear in a roller press toll is a three body abrasion characterised by body and counter body, the material bed in between and the ambient medium, i.e. air. However, on close inspection, two different wear systems seem to be working in area I and II respectively, as follows:

- Wear system I: Due to the material column located above the roller gap, the surface of the roller faces abrasion while the circumferential movement of the roller takes place.

- Wear system II: while rotating at a certain angle and type of feed stock, the mineral particles are gripped and drawn into the gap between the rollers. During this process the splitting strength on many particles is exceeded so that they suffer fracture or breakage. In this case there is no movement of particles, or abrasion involved, but compressive load is very high. Surface removal is achieved by micro fatigue causing minute surface areas to spall off as a result of repeated deformation or stress.

The various types of roller body were designed on rolls, welding technology is used according to the following specifications:

- Forgings require a weld overlay of approximately 12 mm thick, which is a crack free alloy with carbide concentration lower than 20%. The surface is then profiled by using a variety of methods to improve the output.

- In case of chill casting, only profiling with Niobium carbide based complex chromium carbide is used, employing automatically controlled CNC.

- Bimetallic castings are not welded normally.

The roll that was repaired (by Corewire, UK) has been in operation for more than 6000 hrs although the guarantee was for only 4000 hrs. it may also be unique as it was built up by mm.

Courtesy : World Cement, Mar. 02, Pp. 57-59, Enquiry no. 6. Email: mail@worldcement.com Web: www.worldcement.com

SF CROSS-BAR COOLER ENTERS FRANCE

Lafarge's La Couronne facility some 100 km northeast of Bordeaux will be the first French cement plant to install this new type of cooler. The customer has chosen an SF 3x4f Cross-Bar cooler to replace the existing grate cooler.

As the clinker at the La Couronne plant is very fine, Lafarge was keen to know whether the SF Cross-Bar cooler could handle it without spillage, this being a major problem with the existing cooler. Another requirement was to secure hot air from the cooler within a specific temperature range to dry raw materials. A visit to the Monselice cement plant in Italy was arranged to inspect the SF Cross-Bar cooler there, which has been operating successfully since it replaced a traditional grate cooler several years ago.

The entire shutdown of kiln and cooler, which began on 19 January, is scheduled to last 60 days.

Courtesy : Highlights Apr. 2002, P 4, Fax: +453630 1820 Email: info@flsmidth.com Web: www. flsmidth.com

THE HEART OF THE OPERATION

Alexander Anagnostopoulos, Hasle Refractories A/ S Denmark

The heart of the operation in a rotary lime kiln is the calcining process, i.e. the conversion of limestone ($CaCO_3$) into lime (CaO).

This article describes Hasle's precast tumbler lining system that is used in the calcining zone of the lime kiln and the benefits gained from its installation. The system, among other things, is designed to maximize the cascading action, to improve the conductive and convective heat transfer, to reduce the energy consumption per ton of output, and stabilise the operation of the kiln.

The Hasle precast tumbler lining system was designed to prevent core formation resulting in a uniform flow, and to improve the heat exchange between the charge and the combustion gases without creating dust.

- The tumblers stir, and permanently renew the surface of the charge.

- The tumblers prevent the charge from sliding on the lining surface.

- The tumblers tend to retain the charge.

- The tumblers are designed so that smooth slide allows the charge to slide o

Courtesy : World Cement Apr. 2002, Pp 55-57, Enquiry no.8 Fax: +44(0) 1252718992 Email: mail@worldcement.com Web: www. worldcement.com

PROTECTIVE LININGS

Hans M. Christensen, Product Manager. Densit a/s, Denmark,

All cement plants know that unscheduled shutdowns must be avoided, as they increase production loss and maintenance cost. To ensure a plant is economical wear protection linings are a useful tool in the ongoing battle to keep plants running and at a minimum cost. Reliable wear protection linings are essential for effective maintenance planning and Densit wear protection offers both reliability and long life, less frequent planned maintenance, no unscheduled maintenance and no unexpected leaks.

In 1983, Densit a/s a part of FLS Industries began business activities in wear protection of processing parts. On the basis of Densified System containing ultrafine homogeneously arranged Particles (DSP) technology it has developed products specially designed for wear protection in cement and other industrial plants.

Densit can be formed at room temperature. It is supplied in powder form, which only has to be mixed with water to achieve the required properties. The inherent brittleness of ceramic materials is overcome by the use of steel fibres and other steel reinforcements. Densit material is simple to use and demands a minimum of special equipment.

Its intrinsic nature means that it is completely jointless, and can be formed into any geometry and enables seamless linings of variable thickness to be installed.

The Densit wear protection solution can be used in many components and processing parts in a cement plant, which are as follows:

- Separators.
- Cyclones.
- Mills.
- Pipes/bends.
- Ducts.
- Filters.

Courtesy : World Cement Apr. 2002, P60, Enquiry no.9
Fax: +44(0)1252718992
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PROACTIVE PREVENTION

Jeff Shelton and Chris Landers, Halcyon Technologies, USA

A significant problem in dry process cement plants consists of buildup in the preheater and riser duct areas. This buildup can choke feed pipes and cyclones and greatly affect the performance of the kiln, even to the point of causing unscheduled shutdowns.

Historically, attempts to solve this problem have included air cannons, CO_2 explosions (power shots), manual air lances, manual jackhammers, and high pressure water blasting. All of these methods cause damage to the refractory wall and expose the operators to dangerous conditions. These methods are a reaction to the buildup problem.

The PowerClean from Halcyon Technologies is the only system designed to be proactive and prevent the buildup from occurring, and to automatically remove it, it if it does occur.

The system is a cleaning device that combines three different cleaning techniques; high pressure air (in some cases water) drilling, and pushing force. These combine to form an

effective way to prevent and remove buildup problems.

The new PowerBlaster air cannon features an innovative design providing more cleaning force than other air cannons, and at the same time, also solves the major problems typically caused by traditional air cannons.

Many plants have silos and hoppers that are used for material storage. Often, the material being stored in these vessels will become cohesive, creating material flow problems such as bridging and rat holing. The PowerPunch offers and effective and inexpensive solution to this problem.

Halcyon Technologies can effectively deal with all types of buildup. Its innovations will allow cement plants to eliminate unscheduled downtime for manual cleaning, improve kiln efficiency, and reduce SO_2 and NO_x emissions in ways not possible before.

Courtesy : World Cement Apr. 2002,
Pp101-102, Enquiry No. 24.
Email: mail@worldcement.com
Web: www.worldcement.com

QUALITY & STANDARDS

FROM MAJOR TO MINOR

Dr. J. Heckel, Spectro Analytical Instruments, Germany,

XRF is usually employed for the analysis of raw meal and cement. With the introduction of the XEPOS-Cement analyser a compact benchtop instrument, it is now possible to perform quantitative analysis of major, minor, and trace elements in raw meal and cement with excellent precision and detection limits. All important elements such as Na, Mg, Al, Si, P, S, Cl, K, Ca and Fe can be determined in a total measuring time of 300 sec. The determination of traces of Cl in cement is one of the strengths of the XEPOS-Cement analyser. The measuring condition are:

- Tube voltage: 25 kV.
- Tube current: 1.6mA.
- Typical spectrum of a cement sample

The results clearly show that the precision of the XEPOS-Cement analyzer matches the demands of the cement industry. It is also capable of measuring all major, minor and trace elements Z≥11 and can be used for QC-measurements of cement prepared as Lithiumtetraborate glass.

Courtesy : World Cement Apr.2002
P 99-100, Enquiry no. 23,
E-mail: mail @worldcement.Com
Web: www. worldcement.com

OPTIMISED HEAT EXCHANGER THROUGH INTERNATIONAL TEAMWORK

The integration of the former Fuller and F. L. Smidth & Co. into the new global F. L. Smidth has seen a spin-off in the form of a redesigned air-to-air heat exchanger available to its entire organisation, facilitating project and order processing on either side of the Atlantic.

There is mounting demand in Europe for air-to-air heat exchangers that comply with the rapidly rising emission standards. Today, nearly 90% of all new plants are provided with such heat exchangers.

The specific aims of updating the machine to European standard were to

- fulfil the safety requirements specified in the European Machinery Directive
- introduce process calculations in SI units (metric system) instead of English units
- find a more flexible solution for the design of the inlet (new side inlet)
- make it possible, in extreme cases, to reduce noise emission for the large cooling fans suspended from the heat exchanger to less than 85 dB(A).

Over the past seven months a task force assisted by flow and design experts from F. L. Smidth's state-of-the-art Solid Works 3D computer-aided design program.

The next stage in developing the 3D model, which forms the basis of all the machine documentation, is to incorporate electrical design including cable trays, instruments, calculation of cable lengths and process control. Besides, the design will be modified to allow the layout specialists greater freedom in optimising the way in which the heat exchanger is configured to specific plant project.

Courtesy : Highlights Apr. 2002, P 9,
Fax: +4536301820,
E-mail: info@flsmidth.com
Web: www. flsmidth.com

INDIAN STANDARD FOR CEMENT TO BE BENCHMARKED WITH EUROPE'S

The commerce ministry has decided to align the Indian standard of cement with the European standard. The Cement Manufacturers' Association (CMA) has, however, expressed concern over alignment of the two standards, which is expected to take place in a year.

Till now, the two standards had different grades and specifications in terms of chemical analysis and physical requirements like strength and test methods. The alignment would lead to uniformity in standards.

A.V.Srinivasan, secretary general, CMA, said: "It is not practical to align the Indian standard with any other standard. We have a unique climatic condition which is mostly hot and humid and the cement produced here can withstand these conditions. It is not possible to align our standard with others, because they will have a different standard based on their requirements and climate."

Also, it is understood that the cost of production may go up after the alignment, which could lead to a decline in production for some time.

According to the CMA, the industry has state-of-the-art plants in the country that produce high grade cement. It said the government has to ensure that the new benchmark is suitable for the Indian market and weather conditions.

Insiders say that the move is expected to invite more international players, leading to a large scale consolidation and competition. " The international players are looking at China and India because these two are the fastest growing markets. The western markets are by and large stagnating due to population decline," pointed out Srinivasan. Currently in India, there are about 52 cement companies with 120 plants.

At the same time, this initiative would lead to a new branding system in industry. Most existing cement brands would cease to exist, the branding will be more in line with the international system.

The cement industry grew at about 10 percent in 2001-02 after a decline in growth by 0.6 percent in the previous year. At present the cement industry in India has a total capacity of 145 million tonne and produced 107 million tonne in 2001-02. Currently, there are about 109 major cement producing countries with their individual standards.

Courtesy : Indian Cement Review
May 2002, P 25,
Fax: 91-22-2072102

FROM THE DESK OF SECRETARY GENERAL , QCI

The quality management systems certification in accordance with the ISO 9000 series of standards has been with the Indian industry for more than a decade. The new version of ISO 9000 series of standards was released in December 2000. Three years have been given by the International Organization for Standardization (ISO) to the industry for updating their management systems from ISO 9001: 1994 to ISO 9001: 2000 standard.

The International Accreditation Forum. Inc. (IAF) today reminded all organizations currently holding accredited certificates to the 1994 editions of ISO 9001, ISO 9002 and ISO 9003 that their certificates will expire on 14 December 2003, now only twenty months away.

In 1999, the International Accreditation Forum (IAF) in conjunction with ISO/TC176 and ISO CASCO issued a communique defining the policy for organizations certified registered to the 1994 versions of ISO 9001, 9002 or 9003 to make the transition to ISO 9001:2000.

Item 3 of that communique states: "Certificates issued to the 1994 editions of ISO 9001. ISO 9002 or ISO 9003 shall have a maximum validity of 3 years from the date of publication of ISO 9001: 2000.

Hence this is the best opportunity for the Indian Industry to consolidate the gains of the certification to ISO 9000 series of standards and to upgrade their systems to the 2000 version of the standards.

Over the period of last 12 years in India, the certification against ISO 9000 standards has evolved mixed response from the industry. In the initial stages, the industry that achieved certification used to take a lot of pride in achieving a certificate against ISO 9001 or ISO 9002 standard. Now the scenario appears to have changed. This change in scenario has possibly been brought about partly by familiarity of the Indian industry with the standard but largely by some of the certification bodies that have been too willing to give a certificate without ensuring that the requirements of the standards are being met or not.

The certification process that was being followed for the 1994 version of standards has also brought out the shortcoming of the standard and the auditing process particularly the method of verifying compliance by the auditors only on the basis of the records. This has helped in bringing about changes in the ISO 9000 series of standards towards making it less bureaucratic and more result oriented. The background of eight quality management principles and process approach provides the basic structure for the industry. Focus on the role of Top management, Customer perception, business results and continuous improvement has given a totally new look to the ISO 9000 series of standards.

If the organizations are not proactive on the change from version 1994 to version 2000, the certification bodies would be sieged by the demand to carry out audits in the last 3 &4 months of the three year period. This excessive rush at the end of the period would result in shortage of good auditing personnel and the possibility that some of the organizations are not audited within the time period making them loose their certified status.

Moreover the changeover from version 1994 to 2000 is not simple.

The organizations that have been certified to 1994 standards can be classified into two categories. The first one being the Quality organizations that are proactive, their top management is fully involved in the Quality Management system and have gone for certification to bring about continual improvements in their operations and business results. Such organizations would have no problem in changing over from version 1994 to 2000 as these organizations are thoroughly supported by the top management in their efforts to improve.

The second type of organization has gone for certification for the sake of obtaining a certificate, were driven by one of their major customers who possibly threatened that for continued business it wanted all its suppliers to go for ISO 9000 certification. Such organizations can be further divided into two categories . The first category realized that they have benefitted by implementing the standards. Such organizations are also likely to changeover but with some difficulty as they are still in the learning process. Their top management could be comparatively less willing to provide appropriate resources and training for the development of the Quality Management Systems of their organization in accordance with the ISO 9001: 2000 standard.

The second category of the organization is that needs to maintain the certificate for the sake of certificate. There has been no internalization of the system.

The certification bodies that are auditing the organizations against ISO 9001: 2000 for transition from 1994 to 2000 version or for fresh certification would have to be careful as the new version of the standard contains many soft requirements like top management commitment, internal communications, work environment etc. More focus during auditing has also to be given to the business results, continual improvement and corrective and preventive actions. With the removal of ISO 9002 standard, the new version of the standard also prescribes that exemptions can be provided only in the clause 7 that covers the product realization process and each of the exemption has to be justified in the quality manual of the organization. The structure of the eight quality management principles and the process approach called for in clause 4.1 should be visible in the background of the Quality Management System of the organization.

Courtesy : *CREST, Newsletter of Quality council of India Apr.- Jun.2002, Pp1-2, Fax: 91-11-3379621 E-mail: qcisg@bo1.net. in Web: www.qcin.org*

FLUX, VOLUME OR VISCOSITY?

Dr. Michael Clark

Fluxes are of great importance in an industrial cement kiln to keep down the expense of clinker formation in terms of fuel and refractory costs. In this month's Technical Forum, Dr Clark discusses the relative benefits and disadvantages of various flux characteristics. These include include the temperature of the kiln when the flux enters, its quantity and viscosity. The article draws some interesting conclusion that seem to contradict actual cement plant practice.

Courtesy : International Cement Review, Mar. 2002, Pp. 47
Email: info@CemNet.co.uk
Web: www.CemNet.com

THE CASE FOR VERTICAL MILLS

Don Longhurst, Krupp Plysius, US

A little more than a decade ago, the first high pressure grinding rolls to produce a finished slag cement product were put into service. These systems operated at product finenesses in excess of 6000 cm^2/gm, producing high grade slag. The high pressure grinding roll was not just a new piece of grinding equipment, it was a different grinding process, and the power savings compared to a ball mill were greater than expected. While the initial system designs came with material handling problems, eventually these were solved, and several circuits of this type are now in operation. The last such system incorporating a high efficiency separator/shaft-dryer combination eliminated the need for bucket elevators. Modifications have increased the output and reduced operating costs well below that anticipated.

So which system is the most efficient, costs less to install and maintain, and is the least expensive and easiest to operate? Or put another way. 'which is the best system?' With all of the data collected from the various systems, and the analytical tools available today, it might be assumed that this answer would be readily available. Unfortunately is it not. What is available is a realistic examination of the various systems on a commercial scale. Commercial data and theories on methods to achieve higher efficiencies are being generated simultaneously.

For ordinary Portland cement grinding, comparisons of electrical energy for different grinding systems were used as a yardstick to rate them. Some of the savings were in the form of being able to produce a similar product with a coarser grind, thus reducing energy consumption. For slag grinding, the yardstick needs to be widened. Decreasing the grinding energy requirement in the form of electrical power is certainly a consideration. The heat required to dry the granulated slag is also an energy consumer, and a major one at that.

The past year has seen sharp changes in the cost of energy, whether it is in the form of natural gas, oil, coal, or electrical energy. Most slag grinding facility do not have a source of low-grade waste heat to dry the slag with, therefore separate firing systems to supply the energy needed for drying are the norm for slag grinding systems.

It should be expected that for different areas, the most abundant energy in the area will be the least expensive, even to the point of

penalising use of that energy source in short supply. The points is that:

- The most efficient system may not be the least expensive to operate.
- Actual cost of energy may not be correlated to actual energy used.
- Availability of the type of power can have a dramatic impact on cost.
- The type of power most plentiful in an area is subject to change.
- The cost ratio of the type of power can change with availability.

Many past articles have detailed the benefits of ball mill systems, and high pressure grinding roll systems. It would seem that now would be a good time to take a closer look at the vertical roller mill, which has come into its own as a viable slag grinding system.

Courtesy : World Cement, Mar. 02, Pp47-56, Enquiry no. 5. Email: mail@worldcement.com Web: www.worldcement.com

COGENERATION

Anders Lyberg, Technical Director, cementa AB, Sweden, HeidelbergCement

In the year 2001, Cementa AB's 2 million tpa production plant in slite on the Isle of Gotland in Sweden, indirectly, became a producer of electricity, based on the use of excess process heat. Cementa and energy company Vattenfall, formed a partnership, which at an early stage carried out necessary prestudies regarding this co-generation concept.

The driving force for the electricity generating project has been:

- Excess heat from exhaust gases leaving the preheater; approximately 20 MW.
- Heat from excess clinker cooler air; approximately 10 MW.

Approximately 375 000 Nm^3/h of exhaust gas leaves the preheater at 385 to 405°C. This is cooled in a boiler producing suprheated steam sufficient to dry the raw material in the vertical raw mill.

The excess air from the clinker cooler used to be 275°C. Presently, the combustion air is preheated to 70°C by recirculation of the clinker cooler excess gas, which increases clinker temperature by 10°C and clinker cooler excess air to 310°C at a flow rate of 275 000 Nm^3/h. This concept will itself improve the heat exchange for heat recovery. The temperature limit is set by the electrical precipitating filter (ESP), which operates upstream of the heat recovery equipment.

The annual electricity production is estimated to be 50 GWh. The produced electricity is delivered to Cementa and will be beneficial to the electrical grid, which is expected to be strengthened by the operating steam turbine generator set. The total cost for the electricity production is expected to be lower than the long term market price, achieving economical benefits for both companies. The high environmental profile of this concept is positive for both Cementa and Vattenfall.

The waste heat recovered as electricity provides a net 2% lower emission of CO2 at a power plant per tone of cement produced.

Using waste heat for electricity generation from cement plant is one important way to contribute to a more sustainable cement industry.

Courtesy : World Cement, Apr 02, Pp 51-54, Enquiry No.7. Email: mail@worldcement.com Web: www.worldcement.com Fax: +44 (0) 1252 718992.

PETCOKE COMBUSTION CHARACTERISTICS

Gary R. Roy, F. L. Smidth, USA,

Cement producers all over the world are striving to lower their production costs, one effective method of which is the substitution of traditional fuels such as coal, oil and natural gas with petcoke. Its high sulphur content can present operational difficulties if not properly addressed, and the fact that it burns at a much slower rate than normal coals means that for many existing kiln system it is not possible to fire 100% petcoke in the kiln and calciner without special design considerations.

This article highlights the equipment and the experience from several plants that have been designed or modified by F. L. Smidth to enable 100% petcoke firing.

Courtesy : World Cement April 2002, Pp71-74, Enquiry No. 14, Fax: +44(0) 1252718992 Email: mail @ worldcement.com Web: www. worldcement.com

ENERGY MINIMISING CONCEPT

Peter Harfmann, Inspec Fibres GmbH, Austria

The EMC (Energy Minimising Concept), is based on low pressure, pulse-jet cleaning. This further development of Scheuch's already proven impulse cleaning system operates not only with a low required volume of compressed air. The Concept implements a Zero Flow Design that makes it possible to gently clean the filter bags. The newly developed system cleans the filter bag so effectively and with such lasting effect that the plant operator can run the filter at a lower differential pressure.

P 84 from Inspec Fibres is an already well known filter bag material widely used in kiln and mill dedusting systems in the cement industry. Due to the irregular lobed surface of the fibre the filter bags provide outstanding filtration efficiency at low differential pressure during bag house operation. High dust load during compound operation and peak temperatures up to 260 °C while switching to direct operation, means that a highly mechanically durable and heat resistant material needs to be used . P84 filter bags fulfil all the requested properties, which lead to a long-term service life without unnecessarily caused failures.

However, Lafarge Perlmooser had to step into a new technology of baghouse dedusting systems developed by the Austrian baghouse OEM Scheuch for the exhausts of kiln and raw mill in both operation modes.

In addition to the significantly reduced operating costs (see also the Scheuch article in the World Cement, February 2002), an additional prolongation of the usual bag service life by up to 50% can be expected.

Courtesy : World Cement April 2002 Pp117-120, Enquiry No. 19, Fax: +44(0) 1252718992 Email: mail @ worldcement.com Web: www. worldcement.com

PROCESSING COAL TO MEET POWER PLANT REQIREMENTS – PART 1

A.K. Asthana, Director, and Jacob Kurian, Assistant Director, Energy management Division, National Productivity Council

Although the need for non-coking coal beneficiation has been felt for a long time in India, there are still limited washeries. However, the recent mandate of the Ministry of Environment and Forests (MoEF) for using washed coal in power plants has added a new urgency for making progress in this area. In the

first part of this two-part article, the authors offer a critical view of the need for washing coal and the various options that are available in India.

Coal continues to be the mainstay of the development of Indian economy, contributing to two-third of the country's demand for commercial energy. The total consumption of coal during 1996-97 was 297.6MT. of which power and captive utilities consumed about 214.5 MT. Coal consumption for power only during 1997-98 was more that 250 MTwhich as the trend shows, is expected to go up to about 450 MT by 2006-07.

Multiplicity of supply sources have further aggravated the situation. There are very few power plants (except some pit head plants) that are receiving coal from a single dedicated source. Most are supplied E and F grade coal (ie, 85-90 per cent) while a few D grade (ie, 10-15 per cent). The thermal power stations (TPS) therefore receive coals of heterogeneous nature, both in quality and size, creating innumerable problems for the power plants.

In order to deal with these problems, the Ministry of Environment and Forests (MoEF) released a notification on September 19, 1997, directing the following two categories of power plants to use beneficiated coal beginning June 1, 2001:

- Any TPS located more than 1,000 km from the pit head
- Any TPS located in urban areas, sensitive areas or critically polluted areas, irrespective of their distance from the pit head

Coal beneficiation or washing is a process by which the quality of raw coal is improved by either reducing extraneous matter that get extracted along with the mined coal or the associated ash, or both. Coal cleaning plants are commonly located close to the mine and the cost of cleaning is included in the coal price, which vary from case to case, as does the impact on coal quality.

The following methods for coal washing are considered economical:

- Gravity based: Jigs, dense-medium separators, flowing film and concentration table
- Surface property based: Froth floatation
- Dry methods: Cleaning coarse coal with a fluidised air dense-medium or by rotary breakers

An integrated coal preparation system developed by CFRI and funded by the government of India will produce four washed products suitable for different consumers. In order to establish the techno-economic viability of the process, a demonstration plant of 1MTY input capacity has been proposed at the Patherdih washery premises. The likely output of the plants will be:

- 24-27 per cent clean coal with 17.5+/- 0.5 per cent ash for steel plants
- 20-22 per cent cleans with 28 +/- 2 per cent ash for foundry use
- 20-22 per cent middlings with 34+/-2 per cent ash as power house fuels
- 25-30 per cent rejects with 60 +/- 2 per cent ash as fuel for fludised bed boiler houses

Now that the government has decided to open up the coal sector for private proprietors, coal washing should be promoted as a viable private investment. The cost of setting up of coal washeries may be treated as a component of the capital cost of power projects. Another benefit is that the cost of washing might come down, owing to the professionalism in private enterprise.

Courtesy : *The Bulletin on Energy Efficiency, Apr. 2002, Pp18-21.*
Fax: 91-11-4682204/6146004
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Web:www.renewingindia.org

POWER MINISTER SURESH PRABHU OUTLINES POWER SECTOR PROGRAMMES .

Excerpts from the letter to various people on this issue.

Since independence, the generating capacity has grown by about 100, 000 MW along with the associated transmission and distribution network. The consumer coverage has also grown exponentially. Despite this very significant increase in the power infrastructure, we have not been able to contain the energy shortages, ensure uninterrupted quality power and make the sector self sustainable. Consumer satisfaction level remains quite low. Obviously, there are problems yet to be tackled in the power sector of the country.

When I took over more than a year ago, I realised that power sector in the country is at a cross-roads and if I let this "Business as Usual" approach to continue, we will not be able to meet the growing demand for power, a very critical factor for overall growth of the country. Neither shall we be able to achieve any improvement in consumer satisfaction nor make the power sector financially sustainable.

We have planned to add 100, 000 MW capacity by year 2012 to ensure that the economy does not suffer for want of generating capacity. Similarly, a detailed plan has been drawn up for the development of Inter-regional transmission capability to achieve the goal of National Grid by 2012.

Action Plan for addition of 51,000 MW of fresh generating capacity by year 2007 has been formulated. The share from Central undertakings under MOP shall be around 22,000 MW, the balance to be contributed by projects coming under the State and Private sectors, Nuclear Power Corporation and Renewable sources.

Rules are under finalisation to give effect to Energy Conservation Act. A detailed Action Plan on Demand Side Management is being prepared. Benchmarks for important cost segments of various power projects have been identified based on manual on International Good Practices. This would enable the utilities to explore for cost reduction and also ensure a certain degree of transparency. The objective is to reduce the cost of power delivered so as to make it affordable for the consumers.

The Standing Committee on R&D is expected to submit its final report on "Perspective Plan on R&D". The first report on draft " Training Policy for power sector" has already been submitted.

Courtesy : *BJP TODAY Apr 1- 15, 2002*
Vol. 11 No.7, Pp 18-19.
E-mail: bjpco @ del3. Vsnl.net.in

COGENERATION OF POWER UTILIZING WASTE HEAT IN CEMENT MANUFACTURE: TECHNOLOGICAL PERSPECTIVES

Abs. No. [4868]

In the dry process cement plants nearly 40% of the total heat input is rejected as waste heat from exit gases of pre-heater and grate cooler. This waste heat can be effectively utilized for electric power generation. Cogeneration of power, besides mitigating the problem of power shortage, also helps in energy conservation as well as reducing greenhouse gas emissions. Co-generation systems have been successfully operating in cement plants in Japan, China and South-East Asian countries. In existing plants, cogeneration technologies based on bottoming cycles have the potential to generate up to

25%-30% of the power requirement of a plant. However, the Indian cement industry is yet to make a beginning in this direction due to the existence of various technologies and schemes for cogeneration, recent developments and evaluation of these technologies/schemes and highlights the various technical considerations, which should be studied in depth for the design of the heat exchanger and the cogeneration scheme for the installation of a cogeneration system in a cement plant.

Courtesy : TIDE (TERI Information Digest on Energy)
Vol 11, Number 4 (December 2001), Pp- 273-274.
Fax : 91- 11- 4682144,2145.
E-mail: outreach@teri. res. in
Web: www. teriin.org

POLLUTION CONTROL

DEDUSTING DILEMMA

Josef Reisinger and Mohammed Al Desoky, Seheuch GmbH, Austria

Environmental consideration is paramount to the modern cement plants. As the process of cement manufacture creates large volumes of dust at various stages, the Lafarge-Perimooser plant in Austria had to decide how to dedust in the future as its current system of two electrostatic precipitators (ESPs) no longer met requirements. Two options were considered, bag filter and the installation of new ESP. The bag filter system was chosen as it met a number of requirements. The implementation of what is considered a future-oriented solution is discussed in this article.

Courtesy : International Cement Review, Feb. 2002, Pp. 44-46.
Email: info@CemNet.co.uk
Web: www.CemNet.com

FRIENDS OF THE EARTH

Jolyne Fernandes

ICR recently had the pleasure of attending the 'International Seminar on Energy and Environment in Cement Production and Sustainable Construction'. Hosted by the National Council for Cement and Building Materials, India in association with the country's Cement Manufacturers Association, the conference was held in the majestic city of New Delhi. While technology-based strategies were very much at the forefront, as the proceedings took their course, delegates found that in terms of environmental action in the cement industry, the thrust is now moving towards a more socially driven approach.

Courtesy : International Cement Review, Mar. 2002, Pp. 49-50
Email: info@CemNet.co.uk
Web: www.CemNet.com

USE OF FLY ASH IN CONSTRUCTION RECOMMENDED

The Statesman, 26th February 2002

Concrete technologists have recom-mended extensive use of fly ash in Indian construction sector. In a seminar organized by Indian Concrete Institute, they have pointed out India could save fossil fuels, curb carbon dioxide emission if it opts for PPC (portland pozzolonic cement) instead of ordinary portland cement. Mr. Mohan Malhotra, a concrete engineering expert outlined advantages for use of PPC in India, 'India could reduce emission of green house gas by large extent by decreasing cement production. Further, in India, there is dearth of good quality limestone in the country. Other supplementary concrete materials like silica

fume, slag are not available in abundance either. In such scenario, PPC is ideal solution', Mr. Malhotra said.

Courtesy : Teri Newswire 16-28 Feb 2002, P-24.
Fax: 4682144
E-mail: outreach@teri. res. in
Web: www. teriin. org

UNCONVENTIONAL TECHNOLOGY MEETS ENVIRONMENTAL CHALLENGE

F. L. smidth has completed a turnkey project for Dyckerhoff's Lone Star industries in the environmentally sensitive Midwest, USA. The perfor-mance results of the new semi-dry pyro-processing systm at the Greencastle, Indiana Plant have been nothing less than spectacular.

The raw materials at Greencastle contain organic carbon and pyritic sulphur as well as hydrocarbons and ammonia. As such, a large potential exists for high SO_2, THC and CO emissions because these components normally evolve in the upper stages of a modern dry-process preheater. Recognizing that it was theoretically possible to design a semi-dry system in such a way that SO_x, NO_x, NH_3, CO, and even "blue haze" emissions are avoided, F. L. Smidth put forth a semi-dry process proposal. Ultimately, selection of F. L. Smidth's semi-dry technology enabled Lone Star Industries (LSI) to avoid a very costly investment in pollution control equipment, namely a wet scrubber and a thermal oxidizer.

The trials were initially made at F. L. Smidth's Dania Research Center in Denmark using actual Greencastle raw materials. These trials demonstrated the viability of semi-dry technology.

The semi-dry technology had to ensure that the alternate fuel could still be utilized while demonstrating sufficient removal efficiencies of pollutants such as HCL, cadmium, lead, etc. Using F. L. Smidth's DUOFLEX burner, the plant successfully re-certified under the BIF (Boiler and Industrial Furnace) regulations while burning solvents having considerable amounts of chlorine (2-3%).

Courtesy : Highlights Apr. 2002, Pp 5-6,
Fax: +453630 1820
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Web: www. flsmidth.com

SAYING NO TO NO_X

Cadence Environmental Energy

Cement kilns are the near perfect environment to create NOx emissions. The Mixing Air Turbo, from Cadence, stops the formation of NOx when used in conjunction with mid kiln fuels which alone can cut NOx emissions by 30% However, with the Mixing Air Turbo, an additional 50% NOx reduction can be expected. Together, the two technologies can cut NOx emissions by 65%.

The system is a high efficiency fan, mounted on the kiln over the calcining zone. The fan blasts a steady of air into the kiln through a special nozzle. The powerful air flow creates a tornado like swirling action that enhances combustion and lowers NOx emissions by mixing stratified gases.

It is in operation in the US and Europe.

Courtesy : World Cement May 2002 P 74,
Enquiry No: 10, Fax: +44(0) 1252718992
Email: mail @ worldcement.com
Web: www. worldcement.com

THE FUTURE OF ELECTROSTATIC PRECIPITATORS

Ulf Richter, Bob Tylor and Terry Farmer, BHA Group, Inc., USA,

The emission reduction varies from country to country and from industry to industry, but is quite dramatic. Especially in developed countries, air quality has improved markedly, while industrial output has increased. Typical emissions have droped from approximately 150 mg/Nm^3 in 1960, to 10mg/Nm^3 (dry) in 2001. The trend in many countries is to continue this reduction, as technological advances make it possible to achieve almost total elimination of particulate from industrial gas streams.

Fabric filter dust collectors have come to the fore recently, as new technology filter media make it possible to achieve filtration rates in excess of 99.9%. But what about the tried-and-true ESPs that have been the industry standby for years? Can they meet the challenge of stringent particulate regulations?

How is it possible to tell which units have potential, and which need to be upgraded?

The efficiency of an ESP is very dependent on different operation parameters:

- Moisture content of the gas.
- Flue gas chemistry.
- Particle size distribution and chemical composition of the particulate.
- Particulate electrical resistivity.
- Gas temperature.
- Primary combustion material.
- Raw material.
- Secondary combustion material.
- Start and stop operation.
- Transition phases of different operating condition and different raw materials as well as different fuels.

What are the technical developments that enable precipitators to be as effective as fabric filters? After all, for the last 40 yrs, precipitator design has been essentially unchanged, with the exception of plate-to-plate spacing, which has increased from 250 mm to approximately 400 mm.

Other precipitator technology advances, introduction of the thyristor at the end of the 1970s was a significant development, in the 1990s micropulse transformers and high frequency transformers were introduced. Precipitator voltage controls rode the wave of computing, and old analogue controls gave way to computerised, digital control systems. These advances provide the company with the courage to assert that ESPs have a bright future, even where very low particulate emissions are demanded.

There are several current developments in information technology and computerised control that can greatly enhance the performance and reliability of most existing precipitators:

- CO monitoring:
- Computerised precipitator control:
- An automated start-up and shutdown logic system:
- Remote diagnostics:
- External rapping:
- On going development of high voltage power supplies.

Gas distribution must be absolutely perfect even when this requires expensive computer simulation studies. The old theory of perfectly even gas distribution is being challenged by vendors promoting skewed gas distribution. This approach seems to hold some promise.

With the application of the most modern process control, optimal high voltage supplies, proper sizing and appropriate number of electrical fields, an ESP with an emission of less than 10 mg/Nm^3 can be built with no risk.

By addressing known concerns, an ESP can be designed to accommodate more stringent emission standards.

Specific collecting areas will need to increase, but more importantly the number of electrical fields will need to rise. The percentage of total plate area rapped at one time will also need to decrease. Gas flow distribution will be critical to maximise usage of available plate area and the entire system will need to be integrated into a computerised management and control system. Attention to detail allows the ESP to remain a valuable particulate removal option well into the future.

Courtesy : World Cement May 2002 Pp69-73, Enquiry No.9, Fax: +44(0) 1252718992 Email: mail @ worldcement.com Web: www. worldcement.com

ENVIRONMENTAL IMPROVEMENT

CLIMATE CHANGE AND OPPORTUNITIES FOR GROWTH

The UNFCCC (United Nations Framework Convention on Climate Change) and the Kyoto Protocol represent a unique international effort to ameliorate the effects of a global problem. Part of the solution includes the flexibility mechanisms of JI (joint implementation), CDM (clean development mechanism) and emissions trading. These mechanisms provide a means for specified countries, known as Annex-I countries, (which have ratified the Kyoto Protocol to achieve their assigned emission targets). There are at least two distinct ways through which India can benefit from the UNFCCC and the Kyoto Protocol, as well as related climate change initiatives.

The first is through direct efficiency improvements of the industrial base within India through voluntary actions. Where these improvements are economic in their own right they are often termed as 'no regrets' actions. The AGO (Australian Greenhouse Office) has developed a number of different programmes that facilitate developments of this type, such as the Greenhouse Challenge and the Greenhouse Friendly product certification programme.

The second is thorough CDM, which is of particular use to India. It provides for emissions reduction resulting from the implementation of greenhouse abatement projects funded by the Annexe I countries to be transferred from the host country back to the sponsoring Annex I country. Many opportunities exist within India for the development and implementation of suitable projects. Benefits for host countries include money from the sale of emissions reduction, technology transfer, and sustainable

development. The challenge is to identify the projects and to create relationships with project developers and sponsor countries to allow them to be implemented.

Voluntary actions and the CDM provide excellent opportunities for accelerated growth leveraged by the growing trade in emissions reduction. Maximization of the potential outcome will require proactive leadership, innovative approaches by industry, and a willingness to search out development partners and networks from around the world. This will provide the opportunity for countries such as Australia to export their technological expertise to the countries where they are needed.

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Courtesy : TERI Newswire, 1-15 Apr 02, Pp 17-20. Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

CDM LAUNCHED

Clean Energy News, 01 Jan 02

The Netherlands has become one of the first countries to initiate Clean Development Mechanism (CDM) projects. CDM allows investment in greenhouse gas mitigation projects in developing countries by industrialized nations to meet their obligation for reduction of greenhouse gas emissions. Under the Kyoto Protocol, the Netherlands government has an obligation to reduce its greenhouse gases by 6% compared to the reference year 1990. The Dutch government has decided to meet 50% of this obligation by project development in other countries. For this purpose, the Netherlands will purchase certified emission reductions (CERs) in developing countries which will also contribute to sustainable development in these countries.

Courtesy : REPSOVISION, Winrock International India, Vol 18, Jan02,
Email: winrock@vsnl.com
Web: www.winrockindia.org
Fax: 91-11-6146004.

EMISSIONS TRADING THREATENS EUROPEAN CEMENT MANUFACTURING SITES

The introduction of a European-wide trade in emission rights will create an inducement for energy intensive industries to move their production to countries outside Europe. For this reason the German cement industry strongly objects to the latest proposal from the EU commission for a directive on emissions trading. It points to the fact that it can be more lucrative for the manufacturer of energy intensive bulk products to reduce production at local production sites, sell the corresponding emission rights, and cover the domestic requirement by imports. For cement manufacture in Germany alone this would affect up to 50 000 Jobs, while CO_2 abatement on a global scale cannot be achieved with the model proposed by the EU Commission.

The reason for the threatened displacement of manufacturing sites lies in the high prices expected for CO_2 emission rights. In its "Green Book on Emissions Trading" the European Commission come to the conclusion that the future market price for each tonne of CO_2 is likely to lie between EUR 15 and 75. This is contrasted with the relatively low net product in many energy intensive industries. This is certainly true of the manufacture of cement.

About 0.7 tonnes of CO_2 are emitted during the manufacture of one tonne of cement, so the net product corresponds approximately to the proceeds which can be obtained from the sale of the related quota of emissions. As a consequence, it could be more lucrative for the manufacturers to dispose of their local emission rights and to move at least the most energy intensive part of cement manufacture, the burning process, to countries outside Europe. There is already sufficient capacity available around the world to be able supply the domestic market.

Another point for criticism in the directive is the inadequate consideration given to the agreement entered into between German industry and the German government on climate protection which was extended only in November 2000. This agreement with its voluntary measures has demonstrably proved to be the most successful instrument for reducing CO_2 emissions. The German industry, for example, has by itself contributed 30% to the total European climate protection aim of minus 8% relative to 1990. It is precisely the energy intensive industries which have substantially optimized their production processes in recent years. Further potential for abatement costs are extremely high. If abatement aims have to be achieved by buying emission certificates then German production sites are threatened with extinction.

Advocates of emissions trading systems point to the economic advantages which trade with emission certificates entails for those participating in the market. Indeed, SO_2 trade in the USA shows that it can be more economical to buy emission rights than to reduce the emissions by technical exhaust gas cleaning measures. However, this cannot be applied to abatement of CO_2 emissions. On the one hand, no abatement technologies are available for this greenhouse gas and on the other hand the CO_2 emissions are a 1000 times higher than the SO_2 emissions in all thermal processes.

Another crucial weak point of the directive on emissions trading is that its jurisdiction is confined to Europe. Even extension to all the countries which sign the Kyoto Protocol would not remedy the situation. The abatement aims of the individual countries are on the whole too diverse and would therefore lead to drastic competitive distortion to the detriment of German production sites. As long as many countries are not even included in the abatement strategies of the Kyoto process it will always be economically more profitable to import energy intensive products from these countries and run down the European production facilities. However, this would prove a disservice to global climate protection.

Courtesy: *ZKG International No. 3/2002,*
Pp 22-23,
Fax: +49(0)6123700-122
Email: ZKG@Bauverlag.de

ENERGY

HYDROGEN WILL END ENERGY PROBLEMS

According to Nasa scientists, the Earth's crust contains hydrogen supplies that could end the world's energy problems. They say that the hydrogen is produced when water molecules inside molten rock break down. They say they have evidence there may be up to 1,000 litres of hydrogen trapped in each cubic metre of some rocks.

Courtesy : Delhi Times, The Times of India, 23 APR 02, New Delhi, P 7.

ETHANOL MIX IN PETROL CLEARED

Yoga Rangatia, The Pioneer, 1 April 02

The petroleum ministry has given a green signal to the use of ethanol as an oxygenate. As an additive, ethanol helps petrol burn efficiently. Petrol-ethanol blend can reduce carbon monoxide and hydrocarbon emission by up to 35%-55%. A study conducted by the Winrock International India, shows that ethanol has the potential to reduce volatile organic compounds by 27%, nitrogen oxides by 5% and particulate matter emissions by as much as 41%. In the pilot phase, 5% ethanol is blended in three pilot projects launched at Manmad and Miraj in Maharashtra and Bareilly in Uttar Pradesh. Further blending projects are planned at Gonda, Kanpur, and Najibabad in Uttar Pradesh; Bhatinda, and Pathankot in Punjab; and Rajahmundry in Andhra Pradesh. Cost price to farmer for production of ethanol is around Rs 15-18. As demand picks up, the price is likely to decrease. The refinery gate price of petrol increases the cost of the blended fuel. Budgetary concession on excise duty of Rs 0.75 per litre on petrol blended with ethanol will help offset some of the additional cost. The petroleum ministry estimates that to supply the entire country with the 5% blend, it would require 500 million litres of ethanol. But the installed capacity for ethanol production had reached 1800 million litres in 1999/2000.

Courtesy : TERI Newswire, 1-15 Apr 02, P 8.
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

WIND DIESEL PROJECT FOR BENGAL

The Hindu Business Line, 4 April 02

The world's third and Asia's first wind diesel hybrid project is to be inaugurated in Sagar Islands in the Sunderbans of West Bengal on 7 April 2002. The Rs 60 million project is being implemented in two phases with assistance from the Canadian Government, which has given around Rs 15 million of the Rs 20 million cost of the first phase. The sources indicated that enquiries have been received from the Andaman and Nicobar Islands as well Lacadives and Minicoy and Maldives for setting up similar projects there. Pointing out that the first such project was commissioned in 1999 in Canada followed by another in Alaska, sources said that the concept was unique in that it allowed automatic conversion from wind mode to the diesel mode incase the wind velocity was less than adequate.

Courtesy : TERI Newswire, 1-15 Apr 02, P 27.
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

HARYANA TO INTRODUCE SOLAR PUMPS

The Hindu, 13 April 02

The Haryana government has decided to introduce a scheme for setting up 200 solar pumps of 1800 watt photovolatic panel at a cost of Rs 90 million for pumping water, catering to the growing demand for electricity and reducing the usage of diesel in the agriculture sector. These pumps would be made available to the farmers for agriculture and related activities such as minor irrigation, cash crops, horticulture, fish farming, etc on first come first served basis of the selected blocks where water table is below eight metres depth. Only one pump set would be provided to each farmer.

Courtesy : TERI Newswire, 1-15 Apr 02, P27..
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

INDIAN CEMENT MANUFACTURERS UPGRADE PLANTS

F. L. Smidth's Indian centre, Fuller India Limited, has recently received two orders for plant upgrades that include retrofitting of CIS-MFR grate coolers.

Suvarana Cement operating a 300 tpd SP kiln has placed an order to upgrade capacity to 900 tpd. The modifications comprise preheater conversion to 5 stage ILC, LP cyclones for the existing 2nd and 4th stages, a CIS- MFR (Controlled Impact System-Mechanical Flow Regulation) grate cooler retrofit and a fuel dosing System for the calciner. These modifications of the pyroprocessing system will not only bring about a capacity increase but also lead to thermal savings of 100 kcal/kg clinker.

Courtesy : Highlights April 2002,
F. L. Smidth Pp21, Fax: +453630 1820
E-mail: info@flsmidth.com
Web: www. flsmidth. com

USING ENERGY WISELY

US Department of Energy

Since 1973, the US economy has grown nearly five times faster than energy use (126 per cent versus 26 per cent). Had American continued to use energy as intensively as in 1970, the US would have consumed about 177 quadrillion Btu of energy in 2000, compared to about 99 quadrillion Btu actually consumed.

Improved energy efficiency is the result of many decisions, including those of individual consumers as well as manufacturers and government can also promote energy efficiency and conservation through programmes such as the Energy Star programme, and search for more innovative technologies that improve efficiency and conservation through research and development.

Gains in energy efficiency over the last three decades were built on a combination of technological improvements, better management practices, and learning to put these technologies and practices to their best use. In many areas, the results have been quite impressive. New home refrigerators use about one-third of the electricity they used in 1972. Compact fluorescent lights use about 25 per cent of the electricity of the incandescent bulbs they replace. Automobiles use roughly 60 per cent of the gasoline they did in 1972 per mile driven. These individual technological improvements have resulted in significant reductions in energy use.

Advanced sensors and controls enable more efficient operation of buildings and factories, and allow equipment and lights to be turned off or dimmed when not in use. Hybrid vehicles use power electronics and battery storage to get more out of every gallon of gasoline consumed,

and provide the ability to double vehicle mileage. Cogeneration of electricity and heat and combined heat and power allow for the productive use of much of the waste heat from electricity production, which accounts for about two-thirds of the energy used to produce electricity.

When energy prices are high, consumers tend to weigh energy efficiency more heavily. Unless consumers are informed about the price of energy, they may not have the incentive to select the most energy efficient product.

Energy Star is only awarded to appliances that significantly exceed minimum energy efficiency standards. The Energy Star programme does not extend to all products. Energy efficiency would be further promoted if the Energy Star programme were expanded to broader range of products.

The federal government has reduced its energy use in buildings by about 30 percent from 1990 levels, largely by installing energy efficient technologies. It has reduced its energy use for vehicles and equipment by 35 per cent. Some of these improvements are attributable to the Department of Energy, whose Federal Energy Management Program helps government agencies reduce their energy and water use, manage their utility costs, and promote renewable energy.

Sensors help to avoid 24-hour operation of lights and equipment that are only used for a portion of the day. As with homes, advances in windows, heating and air conditioning systems, overall building designs, and equipment and appliances present significant energy saving opportunities.

To keep costs down, builders are less likely to install top-of-the-line, highly efficient products. The less expensive and generally less efficient products are heavily stocked and deeply discounted due to volume ordering. The decisions made about the energy efficiency of buildings and homes are not usually made by the consumer who will ultimately pay the energy bills. The incentive is for the builders to choose the material that poses them the least cost, which is not necessarily the most energy efficient choice.

Manufacturing companies generally obtain their largest savings from improved efficiency of motors (motors account for 54 per cent of electricity use in manufacturing) and from improved steam and hot-water systems. Many companies can reduce energy needs further by cogenerating their electricity and heat from steam.

Energy use for US agriculture grew during the 1960s and 1970s, peaking in 1978. High energy prices during the 1970 and early 1980s caused many farmers to find ways to reduce their energy costs, such as by switching from gasoline-powered engines, adopting conservation tillage practices. Shifting to larger multiprocessor machines, and using energy saving methods for drying and irrigating crops. These measures helped farmers reduce their energy use by 41 per cent from 1978 to 1998, while agricultural output grew by about 40 per cent over the same period.

Courtesy : *The Bulletin on Energy Efficiency, Apr. 2002 , Pp 14 - 15.*
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Web : www.renewingindia.org

THE BUREAU OF ENERGY EFFICIENCY: INSTITUTIONAL PLANNING AND LOCATION ISSUES – PART II

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With the advent of the Energy Conservation Act (ECA), the focus has now turned to the issues that govern the institutional design, organizational structure and location of BEE. It is important that before the institutional designing process is started, the various models applicable in the Indian context are addressed. This would form the basis for evolving an organizational strategy for BEE and enable drawing of up an acceptable work plan.

Given the international experience and India's own unique situation, the institutional framework for the country's national energy efficiency programme could comprise three interrelated units:

- An apex group responsible for policy planning and sectoral coordination
- A research wing within the policy group, aimed at data analysis, programme evaluation and for stimulating development of energy efficiency standards and market transformation.
- A centre for energy conservation responsible for programme planning and implementation.

Given the arguments above and their merit it would be important to locate BEE within the Ministry of Power (MoP) as proposed in the Energy Conservation Act (ECA). It will enable the policy research wing of BEE located in proximity to work closely with other with other national bodies located in Delhi.

The policy group of BEE located in Delhi will be supported by an energy efficiency marketing and finance group, which in effect will be the implementation arm of BEE. India today faces a cluster of issues of which energy efficiency market aggregation, development of innovative financing and project development approaches(such as ESCOs), mobilizing energy efficiency investment capital including engendering financial intermediation, are key to developing an energy efficiency industry. The role of BEE in this is patently clear.

There are good reasons for locating the marketing and finance group, in Mumbai, India's commercial market which by its diversity offers the greatest opportunity to help organize and aggregate the energy efficiency market. Once successfully developed, it is likely to spread and be emulated in other regions. Testing and validating market- driven energy efficiency service delivery models is therefore a core function of BEE in addition to its role in developing energy audit services, establishing voluntary standards of compliance among designated consumers, etc.

Certification programme for energy professionals

A three-tier structure has been recommended to create a viable certification process. The first tier will comprise the Board of Directors (limited to six members) drawn from recognized professional institutions or eminent individuals, whose major responsibility will be to award the certificate and manage the process. This tier would be supported by an Experts Technical Committee to advise the Board on a variety of issues such as course curriculum, examination and evaluation, revision of exam papers, updating training material, etc.

The second tier will comprise a Certification Agency, which will be the apex training infrastructure for developing trained energy professionals. This agency will be selected through a competitive bidding process among qualified contenders and will perform its designated function of training for a period of up to four years. This agency may operate through training franchisees (who have been carefully selected and trained) to monitor quality, conduct examinations, arrange for interviews, award certificates and manage the information database.

The third tier will be accredited energy audit firms chosen on the basis of a simple four-point critera:

- At least three certified energy auditors employed by the firm
- At least three energy audits completed with proof of documentation in the past year
- A minimum inventory of instrumentation
- Firm's income tax return.

Courtesy : *The Bulletin on Energy Efficiency, Apr.2002, Pp 8-9,*
Fax: 91 -11 -4682204/6146004
E-mail: efficiency@ rediffmail. com
Web: www. winrock@vsnl.com

ENVIRONMENT

GLOBAL WARMING HITS AFRICA MOST

The Pioneer, 4 April 02

Scientist studying the impact of global warming are forecasting that the phenomenon would further increase disease, famine, and poverty in Africa. In a report, the Intergovernmental Panel on Climate Change says heavy monsoon – like rain and higher temperatures –will favour the breeding of disease-carrying mosquitoes, allowing them to thrive at higher altitudes. The report cites the example of Rwanda, which is mainly highland, but where malaria cases have increased by 337% in recent years, with 80% of the climb linked with changes in temperature and rainfall. This improves breeding conditions for malaria-carrying mosquitoes. Mosquitoes can also transmit over 100 viruses including malaria, dengue fever, yellow fever, encephalitis, and hemorrhagic fever. The report warns that while heavy rains would become more frequent, there would also be rising levels of drought and the spread of deserts such as the Sahara. In Africa's large catchment basins of Nigar, Lake Chad, and Senegal, total available water has decreased by 40% to 60% says the report.

Courtesy : *TERI Newswire, 1-15 Apr 02, P 34.*
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

ELECTRIC AUTOS TO BE LAUNCHED IN BANGALORE

The Hindu Business Line, 11 Apr. 02

Bangalore could soon have noise-free vehicles in the place of the polluting menaces that go by the name of autorickshaws.

Mahindra Eco Mobiles Ltd is planning launch 'Bijlee', its battery-operated, 10-seater electric auto in Bangalore as soon as it gets permission. The eco-friendly vehicles, which are operating in New Delhi and Agra, have happy customers, says Mr Soami Saran, Chairman. The vehicle, to cost about Rs 0.28 million, would seat 10 passengers and was cost-effective, no-noise alternative, Mr Saran said.

Courtesy : *TERI Newswire, 1-15 Apr 02, P 29.*
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

EU RATIFIES KYOTO PACT, SLAMS U.S.

All 15 EU (European Union) nations ratified the Kyoto protocol against global warming as a bioc on Friday and slammed the US for its failure to do so. The Kyoto pact, which grew out of the historic 1992 Earth Summit in Rio de Janeiro, is aimed at cutting emissions of polluting greenhouse gases which are blamed for rising global temperatures. It requires industrialized nations to cut their emissions by an average of 5 per cent over the period 2008-2012.

Courtesy : *The Times of India,*
New Delhi. 2.6.2002

MARKET DEVELOPMENT AND POLICY INITIATIVES IN EUROPE

After the Kyoto commitment of December 1997, the European Union Council of Ministers agreed on June 17, 1998, on the Burden-Sharing Agreement 1 towards achieving the 8 per cent European Union commitment to reduce emissions. In this context, Greece is allowed to increase its emission by 25 per cent in the 2008-2012 period over the 1990 levels.

Greek policy concerning the acquisition and manufacturing of new Energy Efficiency Technologies (EET) is contained in a number of laws, which establish a variety of financing mechanisms and incentives for investors: interest rate subsidies; tax-free allowances; extra depreciation rates; lower social security contributions; and favourable tax rates.

The main activities in energy efficiency comprise:

- Energy conservation investments through the EU Operational Programme for Energy
- Data collection and statistical analysis
- Participation in the EU project on energy efficiency indicators
- Energy auditing programme.
- Domestic appliance labeling programme
- "Energy 2001" programme for energy conservation in buildings.
- Support of 17 Regional Energy Centres

Investment subsidies range from 15 to 40 per cent, depending on the geographical location of the investment. An alternative scheme of loans at reduced interest rates and tax credits is also provided.

The Centre for Renewable Energy Sources (CRES) founded in 1988 manages a programme of energy auditing under which it provides money and technical assistance for energy auditing in buildings as well as small and medium-sized enterprises and industry.

OPE(Operational Programme for Energy) provided a primary focus for Greek energy efficiency because it made available considerable funds for energy efficiency investments in the country. OPE comprised five sub-programmes: electricity generation, energy conservation, renewable energies, identification of mineral energy and water resources, and supportive actions for the operation of the programme.

Courtesy : *The Bulletin on Energy Efficiency,*
Apr.2002, P10
Fax: 91-11- 4682204/6146004
Email: efficiency@rediffmail.com
Web: www. renewingindia.com.

MEETING ENVIRONMENTAL STANDARDS

Holcim's 2001 annual report

Holcim (US) Inc. and St Lawrence Cement are playing a leading role in the debate about carbon dioxide emissions, which is crucial for the industry. Over several years, Holcim has been taking measures to improve air quality and has consistently been installing the latest environmental technology at its new plants. A series of internal tests have shown that the Group companies will fully meet the new, stricter clean air standards likely to be implemented in the US in the third quarter of 2002.

Another important activity is the search for alternative fuels and raw materials in the production process. In the year under review, Holcim stepped up its efforts in the US and made major progress. At the Clarksville plant, the burning of wood chips and oil-containing waste has been given the green light, while in the future the Trident plant will be permitted to use a higher proportion of petcoke. The Dundee plant is successfully using old tyres. The Mississauga plant in Canada has been environmentally certified.

Courtesy : World Cement April 2002 P 32, Enquiry No. 1, Fax: +44(0) 1252718992 Email: mail @ worldcement.com Web: www. worldcement.com

WORLD WARMING FASTER THAN FORECAST

Reuters

LONDON, May. 14 – Planet earth is warming up faster than previously expected. Dying forests, expanding deserts and rising sea levels would wreak havoc to human and animal lives sooner than anticipated as global warming was accelerating.

Says Geoff Jenkinsn, head of the Hadley Centre for Climate Prediction and Research: "It looks like it will be warmer by the end of the century than what we have predicted."

Jenkins said recent revisions showed much greater output of greenhouse gases such as carbon dioxide (CO_2)than earlier estimated. These gases are blamed for global warming.

Warmer weather will generate more droughts, floods and rising sea levels which many fear will create millions of refugees from drowning island-nations and possible wars over increasingly scarce fresh water.

Economies are also likely to take a blow as farming, fishing and business will be affected by the change in climate.

A 2001 United Nations' report on climate change forecast that global temperatures will rise two to five degrees Celsius by the end of the century.

But recent data suggest temperatures could rise even higher as a worst case scenario shows four times as much emitted CO_2 in the atmosphere from today's levels which Jenkins said is significantly higher than previously expected.

Courtesy : The Statesman, 15th May 2002.

WASTE TO WEALTH

NO PROBLEMS WITH PETCOKE

Norbert Streit, KHD Humboldt Wedag AG, Germany

The use of petcoke as an alternative fuel in cement and clinker production is advantageous

due its lower cost and high calorific value. However, due to poor ignition and burnout properties, petcoke has to be very finely ground, therefore reducing the production rate of the coal mill. The use of petcoke is also limited by its very high sulphur content. As a result, the only way to use 100 per cent petcoke is by means of a bypass system. This article presents the process problems caused by the use of petcoke, along with valuable solutions developed by KHD Humboldt Wedag.

Courtesy : International Cement Review, Mar. 2002, Pp. 71-73. Email: info@CemNet.co.uk Web: www.CemNet.com

A NEW PROCESS REVOLUTIONISES TYRE RECYCLING

R. Balachandran/ California

Irrespective of where they are dumped, scrap tyres pose a serious health and environmental hazard. Abandoned tyres collect rainwater, and the rubber builds up heat – the perfect nesting environment for many an insect. Studies show that the incidence of encephalitis, a disease spread by mosquitoes, is higher in areas near tyre dumpsites.

These dumpsites are also major fire hazards. In the US, a pile of nine million tyres burned out of control in Winchester for almost a year causing severe environmental damage and 14 million tyres burned out of control in Ontario for weeks causing severe groundwater contamination.

It is in this context that the innovative recycling and conservation technology of Integrated Technology Group Inc, Oklahoma, is a ray of hope. The group's patented gassification recycling process ensures that shredded tyres are completely recycled. This new process utilises proprietary technology that creates gassification, distillation and recycling. In this energy efficient vaporisation process the original elements that go into making tyres-primarily oil, steel and carbon-are extracted in recyclable form. The process has a low thermal temperature and low operating costs.

What makes this process unique is that there is no burning of tyres. The scrap tyres are shredded into two-inch chips and fed into an indirect-fired rotary kiln that acts as a convection oven. At the operational temperature of around 353°C, the tyre chips turn into gas. The gases pass through a scrubber and enter a condenser. Oil is formed from the current insert and is pumped through filters. The lighter gases, not condensed into oil, are compressed into gas storage tanks where a portion of the gas is redirected to heat the kiln. The gases can also be used with a reciprocal engine to create electric power. The oil can be marketed to oil refineries for further refinement and used to fuel electric generators or as blend oil in various applications.

The leftover byproducts of the gassification system are carbon powder, steel and a small amount of ash, mainly from the fabric cord used in tyres. The carbon powder can be used in foundries in steel production. The carbon steel wires from the tyres can be marketed to steel mills. The remaining ash, 2 per cent by weight, is mainly inert and can be used in landfills.

Scott Holden, the president and CEO, expects it to be of relevance to developing countries like India, "We look forward to joint ventures or working with the governments directly," he says. " As we do not intend to sell the technology, we want to be involved in any project where our technology is being used"

Courtesy : The Week, 28 Apr 02, P 54.

WASTE PLASTICS WILL FUEL EECTRICITY PRODUCTION

Chemical Industry Digest 14(5):115 (2001)

Sanix Corporation, Japan is building what will be Japan's first commercial electric power plant to use waste plastic as its only fuel at Tomakomai. The plant will burn 704 million tonnes per day of plastics and generate 74 MW of electricity for sale to outside users. In the pilot test, the process has produced exhaust gas that contains less NOx, SOx, and dioxins.

Courtesy : TIDE (TERI Information Digest on Energy), Vol. 11, No.4, Dec. 01, Pp. 229-230. Fax: 4682144 Email: outreach@teri.res.in Web: www.teriin.org

COMMISSION STUDY SUPPORTS USE OF WASTE OILS IN CEMENT KILNS

The European Commission has recently published a study which concludes that, if a full life-cycle analysis is taken into account, regeneration of waste oils does not always have environmental advantages that far outweigh those of incineration. Comparing the respective environmental attributes of regenerating waste oils with using them for valorisation in cement kilns, the study states that regeneration has both environmental advantages and drawbacks, depending on the environmental impact considered. This study reinforces the timeliness of CEMBUREAU's Action Plan on the Use of Waste.

The study predicts that the entry into force of the new Waste Incineration Directive will prevent many installations, with the exception of cement and lime kilns and a few others from burning waster oils.

Courtesy : Cement and Concrete World, Mar.02, Vol.6, Pp.15-16. Fax: (90312) 2879272 Email: info@tcma.org.tr Web: www.tcma.org.tr

INTERNATIONAL COUNTRY PROFILE

AFGHANISTAN TURNS TO INDIA AND JAPAN

Indian industrialists swamped the organisers of meetings on rebuilding Afghanistan. Indian companies have enormous experience in building bridges and roads in difficult terrain. "These companies must now make the most of the multilateral assistance being offered for Afghanistan's reconstruction," India's special envoy to Afghanistan, Satinder K. Lambah, told crowded meeting of Indian entrepreneurs.

In a separate meeting recently with a high-powered Japanese delegation, led by Mrs. Sadako Ogata, special envoy of Japan prime minister, leaders of Afghan's southwest zone have stressed the needs and shortcomings in the areas of agriculture, irrigation, electric power, reconstruction of dams, the cement project (presumably the Kandahar works, a proposed 500,000tpa plant project first initiated as a joint venture between Afghan and Chinese governments in the early 1980s) and airports, as well as the problems facing hospitals and public health as a whole, and asked the delegation to assess these difficulties. The Japanese expressed readiness to prepare the ground for dispatch of delegations to start actual work in delivering Japan's assistance to Afghanistan and in particular the southwest zone.

Courtesy : International Cement Review, Feb.2002, P- 12. Email: info@CemNet.co.uk Website: www.CemNet.com

CONCRETE ROADS ERA BEGINS IN TURKEY

Turkish Cement Manufacturers' Association (TCMA) has signed a protocol with the General

Directory of Highway for constructing concrete roads at two locations: One in Istanbul and the other in Afyon. The protocol was signed by the Minister of Public Works Abdulkadir Akcan, General Director of Highways Dincer Yigit and the President of the TCMA Board Adnan Ignebekcili. TCMA will finance and help with the construction of the roads, which will be the first concrete roads ever built in Turkey. The Project is planned to be completed by the end of November 2002.

Courtesy : Cement and Concrete World, Mar.02, Vol.6, P –4
Fax: (90312) 2879272
Email: info@tcma.org.tr
Web: www.tcma.org.tr

TCMA ON INDIAN CEMENT INDUSTRY

Despite the Indian economy somewhat in the doldrums, many producers are expanding capacity. A nationwide housing revival could provide a much-needed boost. Not too many in the Indian industry are really gung-ho about a speedy revival on the economic front. Cement prices are flat and demand is not showing any immediate signs of picking up and profits are skidding. Despite nursing a surplus capacity many of the industry majors are planning, not only to go ahead with their expansion plans but also firming up plans for setting up new greenfield ventures.

Investments are being made at a time when returns on existing capital deployed in the industry are far from adequate. Optimism taking more exposure is based on the hope of ongoing infrastructure projects picking up. Many firms are upbeat on the housing sector.

Courtesy : Cement and Concrete World, Mar.02, Vol. 6, Pp.18-19.
Fax: (90312) 2879272
Email: info@tcma.org.tr
www.tcma.org.tr

THE LARGEST YET

This summer, Assiut Cement Co., Egypt, upgraded its kiln 1 line. The most important elements of the project were the removal of the old cooler and installation of a 5000 tpd SF cross-bar cooler. The project also included replacement of all heavy kiln sections, calciner and smoke chamber, downcomers from the top cyclone of ID fans and new control system.

Performance measurements carried out recently show that the kiln system is operating at a production level of more 5000 tpd at a heat consumption of 821 kcal/kg clinker. This is prior to the upgrading project when heat consumption averaged approximately 1000 kcal/kg clinker at a production rate of 4200 tpd and a clinker temperature of 350 °C. Although the performance of the cooler installation is now impressive, (a clinker temperature of 77 °C and an ambient at 1526 Nm3/kg clinker and cooler loss of 82 kcal/kg clinker), the most well-received feature of the cross-bar cooler is the simplicity of cooler operation. The precalciner system is of the ILC type, which is suitable for rapid increase to full production. The cooling air fans are operated at 70% of nominal airflow, and then increased to 100% when starting the calciner.

Courtesy : World Cement April 2002 Pp55-56
Fax: +44(0) 1252718992, Enquiry no: 11
Email: mail @ worldcement.com
Web: www. worldcement.com

ASIAN PROSPECTS

5TH Asia Cement Markets Conference,' in Shanghai in March 2002 by World Cement

Papers were presented about the cement industry in the two dominant powers in mainland Asia, namely China and India, as well as overview of the cement industry in Asia.

Lei Qianzhi, Chairman of the China Cement Industry' pointed out that cement output last year was 626 million t, a 6.7% increase on the previous year. Some 6.11 million t of cement and 100 000 t of clinker were exported to the US and Hong Kong. Imports of 2.7 million t of clinker were brought in from Korea, Russia and Thailand. Entry into the WTO will accelerate the pace of the structural re-adjustment of the cement industry and will increase the potential for foreign investment.

Ms Xie Jiajing, Senior Economist, Ministry of Construction presented a paper on the 'Prospects for China's Housing & Infrastructure Construction' in which she demonstrated that the Central Government of China has placed great emphasis on expanding domestic demand to drive economic growth. She presented statistical details of urban expansion and the development of the country's infrastructure over the coming years.

Dung Van Anh, the chief Representative from Lafarge's Beijing Office, in his paper entitled 'Lafarge's Experiences in Investing in the Cement industry in China', described how, since 1994, Lafarge had developed its presence in four production lines. He discussed the need for investment patterns and his company's strategy for further investment in the country.

The CEO of JTC International Consultant, Chong Chin Hin, provided some thoughts about cement production in the Asean region in 'Update on Ready Mix Concrete in China', Particular emphasis was placed on two important elements of the concrete sector in China; the prominence of the Shanghai market and the rapid development of tall buildings.

P.K.Ray, Vice President, Market-ing, at Grasim Industries in his paper 'Growing Cement Market & Opportunities in India', provided a general outline of the industry in India past and present, and went on to look at the way forward through consolidation, acquisitions to date, and the challenges facing the industry.

Construction Analyst Imran Akram of Deutsche Bank, gave an excellent presentation on 'Global Cement Outlook & Reviewing industry Consolidations in Asia'. Here he offered outlooks on Mature and Emerging Markets posing the question "Where to invest?" After describing M&As by global groups in Asia, he considered the role of the global players in the region, trading networks, and the new games to watch out for in mature markets before concluding on the opening up of larger markets in China and India.

Another view of the region was at the heart of the paper by Martin Wilkes of Asia Tradelink in 'Update on South East Asia', while 'September 11th & The Global Downturn Ramifications for Political Risk Issues in Asia', as the title suggests dealt with very different issues facing the region, including economic volatility, civil society, cross-border relations, patterns of economic growth and structure.

A very comprehensive and detailed paper by Dr. Abdul Kazi of the Society of Afghan Engineers dealt with 'Reconstruction of Afghanistan-Priority Projects for infrastructure & the Cement Industry'. The paper will be a useful source of reference for companies looking to become involved in rebuilding the country's infrastructure, developing energy resources and expanding other industries including the construction industry. A separate section of the paper details the current state of the country's cement industry and its future requirements.

Papers of a more general nature included 'Construction Prospects in Asia' by Adeline Wong, senior Project Engineer with BIS Shrapnel, 'Environmental Innovations in the Cement Sector, by Barrie Cook, Executive

Director of Cheung Kong Infrastructure Holdings and Timothy Nechvatalli, Executive Vice President of Minergyy Corp., 'Latest on US Cement Demand', by John Rohrer, President of Rohrer & Associates, and 'Availability of Vessels & Freight Cost for Global Cement Movement' by Jens Faber Andersen, President, Faber Shipbrokers.

Courtesy : World Cement May 2002 P 54, Enquiry No: 6, Fax: +44(0) 1252718992 Email: mail @ worldcement.com Web: www. worldcement.com

UNDER NEW MANAGEMENT

The integration of Blue Circle and Malayan Cement with Lafarge and the establishment of a technical centre for Asia, based in Kuala Lumpur will foster and support the industrial performance of all the Group's cement business units across this region. At present, Lafarge has cement operations in nine Asian countries; Malaysia, Singapore, Indonesia Philippines, Bangladesh, India, China, South Korea and Japan.

Expected to be fully operational by the middle of this year, the technical centre will open up even more opportunities for research and development in the country. The Group's objective is to introduce new technologies and products and expedite the sharing of technical knowledge and expertise among the Asian countries.

A major milestone achieved last year was the certification of Malayan Cement's Langkawi Works to OHSAS 18001 (Occupational Health & Safety System), joining the Rawang and Kanthan Works which were certified in December 2000. This certification was part of its endeavour to provide its employees with a safe and healthy environment and ensure continuous improvement in these areas.

Courtesy : WorldCementMar.2002Pp 40-41, Enquiry No. 3 Fax: +44(0)1252718992 E-mail: mail @ worldcement.com Web: www. worldcement.com

FUNDS INTRODUCED TO ENCOURAGE EMISSIONS TRADING

German state owned credit institution KFW recently said that it plans to introduce two funds to encourage carbon dioxide (CO_2) emissions trading to help the country meet its target to cut 45 million tonnes a year of the greenhouse gas emission by 2010.

The target is part of a wider commitment under the UN-sponsored protocol agreed in Kyoto in 1997 to help industrialised countries cut greenhouse gases that have been linked to climate change.

Germany's existing environmental tools include a voluntary commitment by the energy industry to cut emissions and a renewable energy law that supports producers of electricity from green fuels such as wind, solar and biomass.

The first fund will help companies finance environmental projects in developing countries as part of the Kyoto-suggested Clean Development Mechanism (CDM). "Com panies will be able to pay back the financing for CDM projects by submitting the credits they receive for CO_2 reductions to the fund for sale to other firms," KFW's economics expert Klaus Oppermann said.

The role of the government in the fund will be to provide a guarantee for the investment while the actual financing will be drawn for capital markets. " The fund could issue bonds that gurantee a minimum return, in addition to variable remuneration from the sale of the credits." Oppermann added.

A second fund would aim to encourage small to medium sized firms to take part in emissions

trading in a Europe-wide company cap and trade system, which the EU plans to launch in 2005. The scheme is likely to be mandatory for larger firms, while other instruments are suggested for smaller ones, such as a climate change levy.

"Smaller firms are effectively excluded from the planned cap and trade scheme because the administrative costs could be too high for them," Oppermann said.. " But by opting into the fund, they can avoid the levy by paying its equivalent in exchange for emissions rights, allocated according to their historical emissions levels." KFW has not yet put a time frame on the introduction of the funds.

Courtesy : energise vol. 1, Issue 1, P 15.
Fax: 652 8840
E-mail: mahajankc@bee-india.com
Web: www. bee-india.com

REGULATION NEWS

INDIA TO SIGN CONVENTION ON PERSISTENT ORGANIC POLLUTANTS

Rajiv Tikoo, The Financial Express, 08 Mar. 02

It is time for the pesticide industry to wash itself clean. India has decided to sign the Stockholm Convention on POP (Persistent Organic Pollutants). The announcement was made by Minister of Environment and Forests, Mr. T. R. Balu. The Stockholm Convention on POPs was adopted by the world community on 23 May 2001. The convention has identified 12 of the most dangerous POPs, called dirty dozen, and focuses on reducing and eliminating their use. None of the POPs are pesticides (aldrin, chloradane, DDT, dieldrin, endrin, heptachlor, mirex, hexachlorobenezene and toxaphene); one is an industrial chemical (polychlorinated biphenyls or PCBs), which is used as a dielectric for electric equipment; and two are unintended byproducts (dioxins and furnans) from paper and pulp manufacturing industries, and the incineration of waste, particularly medical waste, containing plastics like PVC (polyvinyl chloride). Besides, iron and steel sintering industries, and secondary zinc, aluminium and copper production industries, chloro-alkalis, dyes and petrochemicals industries, and cement kilns that burn hazardous wastes, too, will be affected.

Courtesy : TERI Newswire, 1-15 Mar. 02, P 34.
Email: outreach@teri.res.in
Web: www.teriin.org
Fax: 4682144

PANEL OF REGULATORS TO VET ELECTRICITY BILL: CERC CHIEF

Anupama Airy, The Financial Express, 13 April 02

The central and state regulators, including 19 state electricity regulatory commissions and CERC (Central Electricity Regulatory Commission), have decided to constitute a committee of regulators to study the provisions of the Electricity Bill 2001, currently awaiting the Parliamentary approval. The committee of regulators would study in detail the provisions of the Bill and submit its report to the select committee of Parliament, attached to the power ministry. The Bill deals in detail about the provisions, powers and functions of Central and state regulatory commissions.

Courtesy : TERI Newswire, 1-15 Apr. 02, P 26.
Email: outreach@teri.res.in
Web: www.teriin.org
Fax: 4682144

TECHNOLOGY FUNDING

PTI Science Service, Mar. 2002

The Government of India's (GOI) science budget for 2002-03 which has increased by 16 percent

over last year gives a big boost to Indian System of Medicine, Ocean Development and Atomic Energy. The government will spend a total of Rs 14,191 crores on science related activities during 2002-03, including Defence Research (Rs 2707 crores) and Space (Rs 2260 crores) as is evident from the following table:

Budget Allocation for 2002-03

Sl. No.	Department	Revised Estimates 2001-2002 (Rs in crores)	Allocation 2002-2003 (Rs in crores)	% Increase
1.	Dept. of Science & Technology	792.3	1014.3	28
2.	Dept. of Biotechnology	185. 5	235.6	27
3.	Dept. of Scientific and Industrial Research	927.7	1041.0	12
4.	Dept. of Atomic Energy	1524.1	1991.0	30
5.	Dept. of Space	1909.4	2263.9	18
6.	Dept. of Ocean Development	151.1	199.3	31
7.	Medical Education, Training and Research	766.4	798.3	04
8.	Indian Council of Agricultural Research	1396.0	1498.8	07
9.	Min. of Non-Conventional Energy Sources	499.1	629.5	26
10.	Min. of Information Technology	455.1	500.4	09
11.	Defence Research and Development Organisation	2455.0	2706.9	10
12.	Dept. of Environment	1002.28	1111.1	08
13.	Indian System of Medicine	134.8	200.9	49
	Total	12218.78	14191.0	16

Courtesy : WISTA Innovation, May 2002, P17,
Fax: 91 –11 –461 9083
E-mail: witt@nde.vsnl.net. in
Web: www. witts org

MALAYSIA KEEN ON JOINT VENTURES WITH INDIAN STATES FOR CORE PROJECTS

The Malaysian Government is keen on technical tie-ups with State Government at Mumbai to participate in Infrastructure projects. It has already tied up with the Tamil Nadu Government to implement a four phase , Rs. 2700 crore project to set up a container port in Kolachal near Kanyakumari. It also plans to set up an 11-km long elevated highway connecting Chennai port with Meenambakkam airport, according to Y.B. Dato, Seri Samy Vellu, Minister of Works, Malaysia. Speaking to newspersons after presiding over the documents signing ceremony for a Rs.750-crore road project, Mr. Samy Vellu said the first phase of the container port project would take off the next year and the past phase would be completed by year 2020.

The first Government-to-Government initiative between Malaysia and India took off today with Swarna Tollway Pvt. Ltd. an SPV created by Malaysia's Construction Investment Development Board with four private companies signing a tern loan of Rs.350crore with an IDBI-led consortium. The Rs. 750-crore project involves strengthening a 110-km stretch on NH-5 between Tada and Nellore and a 35-km stretch between Nandigama and Ibrahimpatnam on NH-9.

Courtesy : Cement News Digest,
23-31 March 2002, P 19.
Email: cmabb@bom3.vsnl.net.in

ROAD INSTITUTE

Ingersoll-Rand (India) Ltd., a leader in road building equipment has recently launched a Resource Centre IR-Rasta, which aims bridge the gap between paving and compaction equipment technology, and end user applications. Established in line with the IR Road Institute in USA, and in China, the IR-Rasta aims to create an ideal platform for training and knowledge sharing for the mushrooming road-building entrepreneurs and professionals in the industry.

Mr. Daljit Mirchandani, the Chairman and President of Ingresoll-Rand (India) Ltd. said that virtual platform has been created very close to the customer with the basic objective of bringing together the contracting community and make it interact very closely with specialists in the field of road building.

"We have world class equipment but lack world class techniques and skilled man power who can handle these sophisticated equipment. There has been no forum that helped them develop these skills. IR-Rasta is trying to bridge this gap in a very small way" said Mr. K. Ramnath, Dean of the Institute.

IR wants to be a total solution provider to the road-building entrepreneurs in India. We are not just equipment suppliers, but also want to help the builder get associated with other research institutes who can support him, in doing the job in the right way, for the very first time itself.

The word "institute" is misleading. It is more like a resource centre where IR is going to act as a catalyst between the customers/end users at one side and the professionals of the industry on the other side. IR will be a forum to bring both these groups onto a single platform where they can exchange ideas and views. And IR's major objective is to support the contractors to do the job 'in the right way'.

Courtesy : The Masterbuilder,
Feb-Mar 02, Pp 14-16.
Email: dicomnet@vsnl.com
Web: www.masterbuilderindia.com

CII TO FOCUS ON COMPETITIVENESS

ET, New Delhi Bureau, 29 April 02.

Competitiveness for India Inc is the CII theme for the current financial year. This was disclosed by newly-appointed CII President Ashok Soota while addressing the first media meet after his election today.

Outlining his vision, Mr Soota set a target for all those representing India Inc to ensure that India reaches the top 20 on the World Economic Forum's Growth Competitiveness Index by 2010. Enhancing competitiveness would be through industry action wherein companies would take initiatives to benchmark with the best international norms along with government policy reforms both at the domestic and external front. Talking about industry action required to compete in the global world, he mentioned that the industry should take care of technology adoption, increasing R&D spend, prioritising innovation, adhering to corporate governance, building industry institutes partnership, integrating e-commerce with business models, greater emphasis on quality, price and delivery of exports and targeting new markets.

However, on an optimistic note he added that a growth of 6 per cent was possible provided the reform process continued. Giving a preview of some new initiatives planned from CII he informed about the formation of four new councils which would be in the areas of agriculture, manufacturing, convergence and public policy.

Courtesy : The Economic Times, New Delhi,
30 Apr 02, P 3
Web: www.economictimes.com

SUSTAINABLE DEVELOPMENT IN BUILT ENVIRONMENT

A seminar on the theme 'Sustainable Development in Built Environment' was organised by Indian Building Congress and Public Works Department, Government of Madhya Pradesh to coincide with the mid-term session of IBC held on December 8-9, 2001 at Rabindra bhawan, Bhopal. The gathering was addressed by number of dignitaries including Hon. Minister of State, PWD, Madhya Pradesh Mr. Manvendra Singhji.

The Hon'ble Minister in his address pointed our that, a strong healthy environment makes the people feel safe, secure and happy. It improves both physical and mental health and encourages their creativity. He urged the engineers to bring out a concept of economy based on the life cycle cost and not on initial cost. While persuing the modern technology, we must study the technology adopted in the past. He concluded his address by recalling Gandhiji words "Let us build our villages and towns in such a manner that there is prosperity and happiness everywhere."

Mr. M.N. Buch in his keynote address stated that sustainable development demands that before construction begins a careful inventory is made of the resources available, with a view to planning the use of these resources in such way that waster is minimized, extraction of raw materials is done in a carefully planned manner, which also provides for restoration of the land, water resources are so used that there is adequate replenishment.

There is direct co-relation between sustainability and levels of economic development. When the economy decays we have evidence of township being abandoned. When the economy recovers the towns are spruced up, acquire a new life and new township get created. Therefore a sustainable urban built environment requires a vibrant economy which can invest in the maintenance of the towns.

Some of the important recommendations made by the seminars are:

- Authorities of thermal power plants producing flyash should come forward to set up units to produce masonry cement and fly ash bricks, so that pollution and land degration being caused gets controlled. They can encourage entrepreneurs to set up units to produce fly ash based building product/materials.

- Concrete industry worldwide is consuming enormous natural resources and disposing off large quantities of construction and demolition waste in landfills. Both these are damaging to environment and are no longer considered sustainable. In the long term, rapid depletion of resources may contravene the principles of sustainable development. One of the solutions is recycling of concrete to produce aggregates for use in new construction.

- To ensure adequate durability, one must select an appropriate concrete mix including admixtures and other eco-friendly materials and also ensure all the concreting operation are well executed.

- A scientifically designed maintenance management system for existing structure need be introduced to effectively preserve the utility during its life span but even prolong the life of facility.

- Should take up formulation of standards in the area of built environment in the same lines as Indian Roads Congress has been done in the road sector.

Courtesy : ICI Journal, Apr-Jun 02, P 47,
Email: ici@md4.vsnl.net.in
Web: www.pcsadvt.com/ici
Fax: 91-44-4910710

INDIA-THAI-MYANMAR HIGHWAY ON ANVIL

The Financial Express, 6 April 02

In a path-breaking sub-regional initiative, India, Thailand, and Myanmar have agreed to launch a trilateral highway project linking the three countries for better connectivity, to enhance trade, investment and tourism with New Delhi suggesting a consortium to raise funds for infrastructure, transport and other linkages. The three sides agreed to cooperate on promotion of a highway from Kanchanburi in Thailand to Dawei Deep seaport in Myanmar and shipping links to seaports in India. The three sides agreed to intensify efforts on human resource development, transfer of technology and to acquire funds and advisory services from countries, regional organizations and international FIs (financial institutions) for the transport linkages.

Courtesy : TERI Newswire, 1-15 Apr 02, P 6.
Fax: 4682144
Email: outreach@teri.res.in
Web: www.teriin.org

ARE EXPRESSWAYS SAFE?

The Hindu Business Line, 22 April 02.

In the past few years, several highways, motorways, and expressways projects have come up in India. Basically, the focus has been on connecting two important cities of prime location, where there is increased traffic flow at all hours of the day – Bangalore-Hosur, Delhi-Jaipur, Delhi-Chandigarh and Chennai-Nellore.

One of the most important, new and state-of-the-art project was the Pune-Mumbai Expressway. Those gruelling 5-6 hours drive has been drastically reduced to a couple of hours now, saving precious time for the Pune and Mumbai industrial and business people. Now, one can go more than two times in a day, if the need arises, which was difficult earlier.

With the new generation of cars such as Mercedes, Lancer, Mondeo, Sonata, Civic, City Ikon, Accent, Corsa, and so on, on can maintain speeds of 140-200 kmph. But are the expressways safe, their state-of-the-art design and layout notwithstanding? Usually, the motorways are two-or-three - track one fast track adjacent to the median; the middle drive track and the third for heavy vehicles. Driving, especially overtaking, on these expressway requires skill, for which wither the government or the public/private sector need to offer training, especially for drivers of trucks, light commercial vehicles and travel agency cars. The training programme must be made mandatory; an additional test conducted for drivers and an endorsement made on the driving license allowing them to drive on the expressways. This should reduce accidents considerably and improve the driving standards.

The other important aspect is maintenance. This, as of now, means repairing damage, but not periodic cleaning and upkeep of the expressways. Compared to India, in other developed countries, including the Far East, the expressways are maintained well. Debris from vehicles is almost nil, yet, the roads are regularly cleaned. The highways are clean and pollution-free and safe for high-speed driving. According to the recent highway statistics, the maximum number of accidents happen because of bursting of tyres, one reason for which could be the debris. So the need to keep the highways clean. The highways Department may well invest in modern road sweeping machines to maintain the expressways for modern high-speed cars.

Courtesy : Cement News Digest, P 17,
Vol. VII, No. 4, 20-26 Apr 02.
Email: cmabb@bom3vsnl.net.in
Web: www.cmaindia.org
Fax: 022-2040582

NINTH PLAN GROWTH LOWEST IN 20 YEARS

The Economics Times, 26 Apr. 02

Even as the country moves to the Tenth Plan period with tall growth projections of 8 per cent, the previous plan period has witnessed the lowest growth in the last 20 years. As per the available data, growth during the Ninth Plan period, i.e. 1997-02, was one of the lowest in the last four plan periods, or 20 years. As per the advance estimates of 01-02, the GDP growth for the Ninth Plan period (1997-02) stands at 5.4 per cent. This is much lower than the growth achieved in the previous three plan periods.

According to an official statement, the growth slippages in the Ninth Plan period was on account of poor agricultural performance and a shortfall in public investment and savings. The GDP growth in 1997-02 was 1.3 per cent lower than the 6.7 per cent growth achieved in Eighth period (1992-97). The Indian economy grew by 5.6 per cent in the Sixth Plan period (1980-85) and by 6 per cent in the Seventh Plan period (1985-90). As per the data, growth levels peaked during the Eighth Plan period when it touch 6.7 per cent. Growth suffered a mojor fall in the Ninth Plan period at 5.4 per cent.

Courtesy : Cement News Digest, P 4,
Vol. VII, No. 4, 20-26 Apr 02.
Email: cmabb@bom3vsnl.net.in
Web: www.cmaindia.org
Fax: 022-2040582

PARADIGM SHIFT IN FAVOUR OF BLENDED CEMENT

A.K. Jain, Fax: 022-6917362.
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The use of Pozzolanic materials in construction is known to mankind for over 2000 years. Pozzolanic materials such as volcanic ash and natural tuffs mixed with lime have been used in Roman buildings and Egyptian structures and have withstood the test of time.

The blending of portland cement with pozzolanic materials produces portland pozzolana cement and is in use from the year 1880 onwards.

The availability of fly ash boosted up the use of Pozzolana cement from 1930 onwards. The use of electro-static precipitators in thermal power plants helped in producing high quality of fly ash with lesser loss of ignition and higher content of siliceous materials. The use of such high quality fly ash through blending or inter grinding with Portland cement has been able to produce a binding material which is not only comparable with OPC but in many characteristics it surpasses the performance of OPC especially in aggressive environmental conditions.

This paper discusses the over all quality perception of PPC, recent changes incorporated by Bureau of Indian Standards (BIS) and steps taken by major cement plants to produce high quality PPC. These steps are resulting in improving the share of PPC in the total production of cement in India in recent years.

At present the quality of PPC is mainly regulated through the following three IS codes issued by BIS.

IS 3812-1987	Indian Standard specification for flyash for use as pozzolana and admixture (draft revision in circulation)
IS 1489 (Part I) 1991	Indian Standard Specification for Portland Pozzolana Cement Fly Ash based (amended in the year 2000)
IS 1489 (Part II) 1991	Indian Standard Specification for Portland Pozzolana Cement Calcined clay based (amended in the year 2000)

The factors are discussed in detail in this paper. The quality of fly ash from major TPPs meets requirements of revised draft code IS 3812:2000. The confidence of consumers in the usage of PPC can further be increased through the following;

- The fly ash supplied by TPP should conform to revised draft code IS;3812 and a third party certification can be made mandatory
- The cement plants should have dry collection system of fly ash and storage in silo in the plant. Appropriate dosing system and weigh-feeders to ensure accurate quantity. It can be enforced by regulatory authorities such as BIS at the time of granting/renewing license.
- Consumers or Consumer forums can visit TPPs and cement plants to ascertain the quality systems.
- The processing of fly ash should be considered where appropriate quality fly ash is not available from TPP.
- Data and procedure concrete mix design with PPC should be developed centrally and disseminated at all levels.
- Adequate data should be generated on performance of PPC in actual field and experience shared with other fellow engineers/decision makers.
- Training end-consumers and other professionals in the use of PPC.
- The introduction of grading in PPC by BIS will further build confidence of consumers.

The PPC produced by major cement companies is now of high consistent quality and can be confidently used. The mindset and other hurdles in the use of PPC should be removed by the major construction organizations. It will have favourable impact on other consumers and the consumption of PPC will increase in the coming years.

Courtesy : ICI Journal, Apr-Jun 02, P 31-34.
Email: ici3@vsnl.in
Web: www.pcsadvt.com/ici
Fax: 91-44-4455148

STRUCTURES AND EARTHQUAKES: PRO-ACTIVE RESPONSE

R.N. Raikar, Fax: 4460760

Earthquake disasters at Bhuj has brought out an heartening and outstanding contribution by engineering fraternity in the form of book "Design of Reinforced Concrete Structures for Earthquake Resistance" by ISSE. It is brought out in a record time and it is of international quality. It is a praiseworthy contribution of the Professional Association ISSE with their team of Consulting Engineers.

ACI (American Concrete Institute), USA has few hundred technical committee served by more than 2500 experts as members. In addition, they have many fold regular paper/article contributions. This alone deserves world class documents of ACI. Can we identity 1% willing contributory participation from amongst our expertise? If we are able to stop this rot, it would be our contribution in the millenium for the profession.

Our chapter wants to celebrate "Silver Jubilee" in 2004. Yes, it is 25 years of the chapter and ACI, USA celebrates centenary in the same year. We are planning some joint mega event here, there and everywhere. ACI, USA is responding with lot of support and enthusiasm and participation. I want all the "concrete experts" to join us in the mega event as "actors", participants and not only as observers. We have and we can do lot for our society.

Chapter proposes to bring out at least two special issues of "Concrete India" on Earthquake. The first one is with you now. The second would follow on "Observations on Seismicity". Contributors are experts who have studied earthquake damage, response and have conducted seismic data assessment by visiting the affected areas. Therefore, you would find originality in the text and therefore it is even fresh to enhance our understanding. I feel "retrofitters" will find these technical issues of interest and we want to come back to you more frequently.

Courtesy : Concrete India journal of the Maharashtra India chapter of ACI, Jan-Mar 02, Vol. 17 No. 1, P 2.

READY MIX CONCRETE

Sanjay Bahadur, & Devendra Kumar Pande, Unitech Prefeb Ltd.

The authors address the theoretical and practical implications of premature concrete deterioration due to the corrosion of embedded steel reinforcement. In quantitative terms and tries to assess what impact available technologies like RMC and use of pozzolans in concrete can have in the matter. The paper covers mathematical model based insight into possible service life of structures.

Based on these facts and the values of corrosion initiation period, it can be fairly concluded that the service life of general concrete structures can be increased by almost 2 times by changing over to RMC, and further many times by incorporating pozzolans like fly ash and GGBS at an RMC plant. Use of RMC must be encouraged. It increases the overall service life of concrete structures thereby substantial savings in life-cycle cost. RMC provides flexibility in terms of using supplementary cementing materials like fly ash and GGBS etc

to further improve durability and eco-friendliness of structures. It is important to assess this aspect and work out the cost of structures. This approach can lead to an enormous amount of national savings in terms of infrastructure costs. In order to practically implement all this, regulatory and government bodies must promote the concept by proper specification and taxation structure.

Courtesy : Masterbuilder, Feb-Mar 02, Pp 45-54
Email: dicomnet@vsnl.com
Web: www.masterbuilderindia.com

STATE OF NHDP (NATIONAL HIGHWAYS DEVELOPMENT PROGRAMME) AND OTHER NHAI (NATIONAL HIGHWAYS AUTHORITY) OF INDIA PROJECTS AS ON JANUARY 31, 2002

Project awarded between August 2001 and January 2002 on the Golden Quadrilateral

Project (State) [Funded by]	NH No.	Length (km)	Awarded cost (Rs billion)	Date of starting	Date of completion
Panagarh-Palsit (West Bengal) [Annuity]	2	65.0	350.00	Jun-02	Dec-03
Tuni-Dharmavaram (Andhra Pradesh) [Annuity]	5	47.0	231.00	Nov-01	Dec-03
Dharmavaram-Rajahmundry (Andhra Pradesh)	6	53.0	206.00	Nov-01	Dec-03
Maharashtra Border-Belgaum (Karnataka) [Annuity]	4	77.0	332.00	Nov-01	Dec-03
Mahapura near Jaipur-Kishangarh (Rajasthan) [BOT]	8	93.0	644.00	Jan-01	Dec-03
Krishnagiri-Vaniyambadi (Tamil Nadu) [NHAI]	46	49.0	163.46	Oct-01	Dec-01
Vaniyambadi-Pallikonda (Tamil Nadu) [NHAI]	46	51.0	183.72	Oct-01	Dec-03
Nasirabad-Gulabpura (Rajasthan) [NHAI]	79	56.0	131.75	Nov-01	Dec-03
Gulabpura-Bhilwara Bypass (Rajasthan) [NHAI]	79	50.0	104.90	Nov-01	Dec-03
Bhilwara Bypass-Chittorgarh (Rajasthan) [NHAI]	79	66.0	151.04	Nov-01	Dec-03
Tumkur-Sira (Karnataka) [ADB]	4	41.4	153.23	Jan-02	Dec-03
Sira-Chitradurga (Karnataka) [ADB]	4	66.7	253.24	Jan-02	Dec-03
Chitradurga Bypass (Karnataka) [ADB]	4	18.0	87.24	Jan-02	Dec-03
Chitradurga-Harihar (Karnataka) [ADB]	4	77.0	264.87	Jan-02	Dec-03
Harihar-Haveri (Karnataka) [ADB]	4	56.0	200.92	Jan-02	Dec-03
Vivekanand Bridge (West Bengal) [BOT]	2	6.0	600.00	Jan-02	Jan-05
Satara-Khagal (Maharashtra) [BOT]	4	133.0	530.00	Jan-02	Apr-04
4 laning of Durgapur expressway Dankuni-Palsit (West Bengal) [BOT]	2	65.0	432.40	Oct-02	Feb-05
Construction of 4-lane Nellore Bypass (Andhra Pradesh) [BOT]	5	17.2	12.96	Oct-02	Nov-04
Belgaum-Dharwad (Karnataka) [NHAI]	4	62.0	204.00	Mar-02	Sep-04
Golden Quadrilateral Total		**1,149.0**	**5,328.00**		

Projects awarded between August 2001 and January 2002 on the North-South and East-West Corridors

Project (State) [Funded by]	NH No.	Length (km)	Awarded cost (Rs billion)	Date of starting	Date of completion
Lucknow-kanpur (Uttar Pradesh) [NHAI]	25	15.5	42.82	Sep-01	Apr-03
Hyderabad-Bangalore Section (Karnataka) [NHAI]	7	25.0	147.75	Sep-01	Mar-04
North-South and East-West Total		**41.5**	**191.00**		

Projects awarded between August 2001 and January 2002 on Port Connectivity

Project (State) [Funded by]	NH No.	Length (km)	Awarded cost (Rs billion)	Date of starting	Date of completion
Haldia Port (West Bengal) [SPV]	41	55.0	220	Jan-02	Jul-04
Jawaharlal Nehru Port, Phase-1 (Maharashtra) [SPV]	4B &4	26.0	143	Feb-02	Aug-04
Visakhapatnam Port (Andhra Pradesh) [SPV]	SR	11.0	78	Apr-02	Oct-04
Port Connectivity Total		**92.0**	**441**		

Other project awarded between August 2001 and January 2002

Project (State) [Funded by]	NH No.	Length (km)	Awarded cost (Rs billion)	Date of starting	Date of completion
Delhi-Gurgaon	8	27,7	482.67		
Other Projects Total		**27,7**	**482.67**		

Status of NHDP and other NHAI projects

	Golden Quadrilateral	North-South and East-West Phase 1&2	Port Connectivity	Others	Total
Total length (km)	**5,851**	**7,300**	**381**	**653**	**14,185**
4-laned/Compelted (km)	1,063	717	18	66	1,864
Under implementation (km)	4,129	644*	137	221.3	5,131
Number of contracts under implementation	92	34	6	8	140
Approved for award (km)	144	-	11	27.7	183
Awarded cost to the civil contractor (Rs billion)	174.08	19.35	5.81	14.59	213.83
Balance length for award of civil works (km)	515	5,939	215	338	7,007
Balance number of contracts for civil works award	By 3/2002:8 By 6/2002:3	By 3/2002:3	By 3/2002:6	After 6/2002:2	
Expenditure during current financial year (Rs billion)	20.01	4.28	5.89	30.18	

** Includes 106 km common stretch with Golden Quarrilateral.*

Categorisation of contracts according to the value

Contract value range	No. of contracts	Value (Rs billion)
Above 5 billion	4	23.95
4-5 billion	3	13.63
3-4 billion	5	17.77
2-3 billion	25	62.64
1-2 billion	41	60.90
05.1 billion	38	27.36
Bellow 0.5 billion	24	7.58
Total	**140**	**213.83**

Summary of contracts under implementation as per the nationality of the implementing agency.

Category of firms	No. of contracts	Awarded cost (Rs billion)
Total no. of contracts	140	213.83
Indian firms	90	106.86
Joint ventures (Indian & foreign firms)	38	71.04
Foreign firms	12	35.93

Courtesy : Indian Infrastructure, Feb 2002, Pp 48-49. Fax: 6152344, Phone: 6152322 Email: powerlin@del2.vsnl.net.in

THE STRATEGIC INDUSTRY REPORT

The Strategic Industry Report prepared for the cement sector was made public on April 29, 2002. The existence of information providing a base for short-term, mid-term and long-term planning is an insurance for any industry. For this reason the management of Turkish Cement Manufacturers' Association and Cement Manufacturers Employers' union decided to initiate a research project to satisfy the information need for long-term planning in cement industry. The project was assigned to Andersen Business Consulting, an independent consulting firm. The strategic Industry Report was completed in 8 months.

The report contained sections such as: The current situation in Turkish cement industry, cement industry benchmarking report, domestic demand forecast study, SWOT analysis and recommendations.

Courtesy : Cement and Concrete World, Mar- Apr 02, Vol.6, P –7. Fax: (90312) 2879272 Email: info@tcma.org.tr Web: www.tcma.org.tr

IMPORTANCE OF GGBS/PSC

Dr. J. D. Bapat, HOD Chemical Eng. Dept. Bharti Vidyapeeths College of Engineering E-mail jdbapat@giaspna.vsnl. net.in

Greater awareness and emphasis have been given on durability of concrete structures during the last decade. The emphasis of construction industry has shifted from high-strength to high-performance concrete. The realisation has come on account of the fact that nearly 65% of the total cement sales in the country presently go towards the repairs/rebuilding of old structures. The need to build durable structures is felt not only from the point of view of economy, but also for the conservation of resources, energy and environment Durability means the capacity of the structure to effectively withstand the attack of the deleterious agents, both external and internal, throughout the life for which it is designed. The common causes of distress and deterioration in the concrete structure, in this part of the world, are carbonation, corrosion of reinforcement, sulphate attack and alkali-silica reaction (ASR). There is ample evidence both

at the laboratory level and in the field, on the long term, pointing to the fact that the cement concrete made with the addition of industrial waste products such as fly ash (FA) and ground granulated blast furnace slag (GGBS) has durability properties and excellent resistance towards the deleterious agents mentioned as above. This was also the unanimous view expressed by the professionals and experts representing 20 countries, gathered at the Seventh CAN-MET/ACI International Conference, concluded at Chennai (22-27 July 2001).

There is no Indian Standard on GGBS, however its addition to the concrete should conform to the provisions of IS 456: 2000. The manufacture of Portland Slag Cement (PSC) in the country is governed by IS 455-1989, which permits the addition of 25-70% GGBS to the clinker, during the manufacturing process in the plant.

Courtesy : The Masterbuilder ,
Feb-Mar 2002, Pp26- 33.
E-mail: dicomnet@vsnl. com.
Website:www. masterbuilderindia.com

NEED FOR EFFICIENT ROAD MANAGEMENT

R. P. Sinha

Roads, the lifeline of a country, is at once a determinant of its prosperity. A sound system of roads neutralizes the disadvantages of distances in conveyance of raw materials and labour. It accelerates the pace of both production and distribution activities. A good road infrastructure is a prerequisite for sustaining transport growth. While wealth helps build roads, it is roads that create wealth.

The other modes of transport system like railways are suited for bulk haulage and for long distances within the country, airways for light and quick haulage across the country, and shipping for bulky and longer haulage. But all of them cannot provide the advantages of roads and road transport. By virtue of its ability to penetrate into the remotest parts at comparatively very low capital cost, road transport outshines others.

It sounds good that India is in the selected band of a few countries having huge and large roadlines. A very encouraging picture emerges from the following:

Year	Road length in km.	Vehicle population
1955-56	439	426
1965-66	555	1, 099
1975-76	984	2, 700
1985-86	1, 381	10, 577
1995-96	2, 180	37, 783
2000-2001	3, 300	53, 100

Figures in '000'

The road network has increased from 0.4 mk in 1950s to 3.30 mk by the turn of century. But the number of motor vehicles has increased at much faster rate. We can call it "mismatch". Roads are over-used.

This is a mortal world. Nothing is immortal or everlasting. The only difference lies in the rate of decaying. It can be a slow process or a faster one.

Most modern and best-designed projects are subject to stress and strain. What is essential is their upkeep, maintenance and management. Our roads are more vulnerable to the decaying process. India has one of the largest road net works. Very soon a few thousand kilometres will be added under the Pradhan Mantri Gramin Sarakyojna. However road

development is not matching what is obtained in other developed or developing countries.

We do not have adequate road maintenance and rehabilitation, or road management.

Is there a need for a number of road development authorities? The National Highway Authority of India is a joke. In fact, India has no highways and no one has any authority over them. Rather local bodies boss over it. The 35, 000 km of so-called National Highways are just slightly wider roads that connect towns and villages which get clogged with the chaotic short-distance traffic of cycles, bullock-carts, tractors, cars, buses and trucks plying on them. Extreme weather and poor drainage system accelerate the withering process.

The skyrocketing road accident rate is alarming indeed. Traffic mishaps account for a majority of accidents or deaths. There is one death every 2.75 minutes caused by road accidents.

Courtesy : INDUSTRIAL HERALD, Vol. 37 N0.3
Mar 2002 P- 46.
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HANDING IT OVER

Stephan Scholtissek and Reiner Burton, Accenture, Germany

Before considering outsourcing, cement producers need to fully understand what its role is and why it should be on the CEO growth agenda. One answer to this is of course the more proscriptive approach taken by regulators, which is forcing cement producers to revisit their cost base with ever-increasing vigour.

Accenture contends that many cement producing companies are getting to the end of the line in terms of head-count reduction. There is not much left to cut, at least not without endangering standards of service and safety, so what next? If support functions have been a soft target in terms of taking costs out of the business, cement producers that keep chipping away at these functions without rethinking the mould are liable to run into problems, which could end up costing money in the long term. So the alternative to pairing everything to the bone and compromising performance is to outsource. The key challenge is to identify what is core, and therefore must stay in-house, and what is non-core and can be outsourced to specialists.

When addressed in this context, the view must be that nothing should be considered sacred, be it IT, logistics, engineering, operations logistics, engineering, operations or finance. Companies should only keep control of that part of their business that is competitively critical in the marketplace and makes them successful. To date, the cement industry has tended to view finance and accounting in this category and on this basis has been reluctant to give up control. However, while being a key business support function, finance is largely a transactional processing group supporting basic accounting and reporting activities, so it is a very suitable case for outsourcing.

If taken to its most beneficial point in the value chain, the company believes that outsource providers could take over 90% of a cement company finance team, while the cement company retains 10% at the top end.

The authors believe that the scope for outsourcing among cement producers has not yet been exploited. Cement companies should

include all of their IT and all of their customer service. That includes front and back office and call centre functions. To really transform an enterprise it is also worth looking at financial accounting, human resources, supply chain procurement and field-force management. What should not be outsourced? Strategic areas such as customer strategy should not be outsourced as well as developing new products and services and the marketing of them.

Accenture projects that in 2 to 3 years most cement companies will have developed outsourcing strategies that shed the more complex, expensive or non-core areas, such as metering and legal services. This will bring compelling benefits in terms of gaining access to world-class capabilities, while freeing up internal resources for other purposes. Ultimately, cement producers have to decide what, in an increasingly competitive market, they are best at, what sort of business they want to be in, and what they would rather hand over to specialists to do for them. Trying to do it all in-house, right across the value chain, is no longer an option.

Courtesy : World Cement Mar. 2002, Pp45-46, Enquiry no. 4
Fax: +44(0)1252718992
E-mail: mail @ worldcement.com
Web: www. worldcement.com

PRODUCTIVITY IN THE AGE OF GLOBALIZATION

S. A. Khader (Deputy Director General National Productivity Council)

India being the fast and rapidly growing market can provide a sustained domestic market only when the fast changing aspirations of the domestic customer are effectively met, lest countries like China should take over the Indian market once WTO regime comes up fully. However, the dynamic management of the enterprise has to focus on continuous renewal of its skills, introduce competitive compensation-cum-remunerations to the work force and promotion of innovation which would not only ensure success in the domestic market but also in the global environment.

As per a recent study undertaken by NPC, the labour productivity growth is found to hover around less than 3% annum (2.88%) whereas capital productivity is around 0.80% with a total factor productivity growth of 1.85% during the period 1990-99. Asian Productivity Organisation in its latest report places India's labour productivity growth rate (90-99) to be around 3%, while Korea, Taiwan, ranged around 5% with Malaysia and Thailand falling slightly below at about 4.5%. In fact, the report clearly established that high labour productivity of the Asian tigers had enabled them to steer through the economic/financial crisis of the recent past. On the other hand, the latest ILO report (2001) explains China's spectacular economic growth of 11% is due to the highest productivity growth ranging around 5.5% per annum, with an investment rate of 32.9% clearly demonstrating the soundness of the economy from the productivity front. Further, the investment rate per one percentage GDP growth is the lowest with China at 3.00% and Malaysia too is comparable to China in this regard. But, India needs to invest 4.2% for getting 1% growth in GDP, substantiating the oft quoted statement by the Planning Commission that ICOR is highest in India. From all these we are in a position to clearly establish that productivity growth not only directly influence economic development, but also investments needed for enhancing economic growth is again influenced by the productivity performance, thus strengthening a virtuous link between investments, productivity, economic growth and quality of life.

Table : India in relation to its Asian Competitors (Period 1990 – 99)

Country	GDP Growth	Investment Rate %	Investment Per % GDP	Productivity Growth	FDI
India	6.0 US$	24.5	4.2	3.0	3.0 Bln
China	11.0	32.9	3.0	5.5	40.0
Thailand	5.2(7.0)	24.5	3.5	4.5	-
Indonesia	5(7.5)	22.8	3.6	5.0	-
Korea	6.2(7.5)	25.5	3.5	5.0	-
Malaysia	8.0(9.5)	24.0	3.1	4.5	-

Figures in parenthesis are the average growth before the Asian financial crisis.

Courtesy : Yojna Jun. 02. Pp 4-5.
Fax: 6175516/6193012
E-mail: yojna@techpilgrim.com

NEW VISION FOR CONSTRUCTION INDUSTRY

BRE News Release, Mar 19, 2002

The Fairlough report calls on construction industry to develop a new vision for its future. It provides an excellent framework for improving effectiveness of research and development in construction and a opportunity for industry to make a step change in innovation. In particular, it suggests that: (i) the industry should welcome proposal that sponsorship research strategy to become industry led, and help to develop and maintain that strategy by providing real industry engagement at the most senior level; (ii) the industry need to support the report's contention that construction industry has been under-funded by government compared to other industry sectors; and (iii) the report recommends that government should procure the research needed to support the new industry-led strategy and government policy, primarily through long term multi-disciplinary contracts. The review was commissioned jointly by DTI to assess understanding, knowledge, skills and facilities in construction research that are likely to be needed to meet future government and industry needs and to advise on how and where these would best be supported.

Courtesy : WISTA Innovation Vol. 3, Issue II, May 2002, P 8, Fax: 91-11-461 9083
E- mail: witt@nde vsnl.net.in
Web: www. witts .org.

JOINT STUDY INITIATED

Cement majors Larsen & Toubro Ltd and Grasim Industries Ltd have initiated a joint study to find out ways of reducing production cost. This is stated to create a synergy, to begin with, in the operations of the two companies. According to Mr. J. P. Nayak Member of the Board & President (Operations) of Larsen & Toubro Ltd, the two companies are following a path of "co-optition," a road between " co-operation and competition" of two players in the same sector.

This is, perhaps, the first sign of creating a synergy in operations between the two, after

Grasim purchased Reliance Industries' 10 per cent in L&T together make a formidable duo in the cement sector, which is currently witnessing an overall consolidation. Their total capacity is approximately 30Mta.

Courtesy : International Cement Review/ Feb 2002 ,P-14
E-mail: info@CemNet.co.uk.
Website: www.CemNet.com

MY HOME GOES FROM STONE-LAYING TO FULL PRODUCTION IN A YEAR

When Highlights visited My Home Cement on 29 January this year, it was exactly one year since the first stone was laid for the new production line. Already now the plant is close to full production. The project has progressed very swiftly, indeed it probably marks a record in the world of cement.

After the successful expansion of Line 1 from 1200 tpd to 1500 tpd in March 2000, including a new ATOX mill and pyro/cooler upgrading, My Home Cement placed repeat orders with Fuller India and F. L. Smith for the supply of machinery for the Line II project. The main machinery for the 2400 tpd production line includes an ATOX 32.5 raw mill, a six-stage ILC preheater, a 3.6 m dia. x 54 m rotary kiln and a COOLAX cooler with CIS/MFR fixed inlet, a TIRAX coal mill and a DUOFLEX burner. A new UMS ball mill and an O-sepa separator are added to the existing cement grinding facility Baghouse filters for both pyro and cement mill were supplied by Fuller Bulk Handling. The Line-II was finally commissioned on 15 February 2002.

Courtesy : Highlights Apr. 2002, P 14,
Fax: +4536301820
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Web: www. flsmidth.com

CLEAN DEVELOPMENT MECHANISMS AND TECHNOLOGY TRANSFER

Vivek Kumar
E-mail: vivek@sdalt.ernet.in

The Kyoto Protocol (COP3, Dec. 1997) laid down four 'flexibility' mechanisms to bring down greenhouse gas emissions reductions. The Clean Development Mechanism (CDM) is one such mechanism for supplementing domestic actions by the developed countries for emission reductions under the Kyoto Protocol. The purpose of the CDM as defined under Article 12 of the Kyoto Protocol is to:

- Assist Parties not included in Annex-1 (developing countries) in achieving sustainable development
- contribute to the ultimate objective of the Convention, and
- assist Annex-1 Parties (developed countries) in achieving compliance with their quantified emission limitation and reduction commitments (QELRCs), under Article 3 of the Protocol.

The CDM will operate under the supervision of the CDM Executive Board, which has since been constituted during COP7 at Marrakesh. This will ensure a prompt start to the CDM in developing countries to promote sustainable development through CDM project activities that would bring additional foreign investment and clean technologies for reduction of avoidance of carbon emissions.

CDM being a project based initiative can increase technology transfer. The CDM can provide financial incentives for environmentally sound technologies and influence technology choices. As a voluntary mechanism, this requires co-operation between developed and developing country parties, as well as between governments, private sector entities, and community organizations. Project based

crediting can lead to tangible investments and to the development of local capacity to maintain the performance of these investments. These investments could incrementally assist developing countries to achieve multiple sustainable development objectives, such as economic development, improvement of local environmental quality, minimisation of risk to human health by local pollutants, and reduction of green house gases.

Asian Development Bank has identified a few sectors in India where CDM projects can be taken up. A list of sectors and possible technologies that should be considered for GHG emission reduction was drawn up.

Sectors	Technologies
Clean Coal	Co-generation Combined Cycle, ISTIG Pulverised Fluid Bed Combustion, Integrated Gas Combined Cycle PCSCB,Coal washing
Renewables	Small Hydro,Wind Farms Biomass Power Solar Thermal Photo Voltaic (decentralised)
Renewables for agriculture	Gasifiers - agro based - wood based - Wind - Photo Voltaic Pumps - shallow well - deep well
Industry (Cross cutting options)	Diesel Cogeneration Heat Pumps High Efficiency Motors Waste Heat Recovery
Transport	Compressed Natural Gas Cars/Buses, Mass Rapid Transport Systems, Battery Operated Vehicles-3 Wheelers 2-Whheler (4 stroke)
Domestic Lighting	Compressed Fluorescent Lamp 36 W Fluorescent

The study concluded that the renewable energy technologies have the highest GHG emission reduction potential. The cost per tonne of CO_2 saved is also low for renewable compared to the absolute amount of investment. The renewable projects can hence meet the developmental needs of the country and at the same time help in reducing carbon-dioxide emissions and addressing climate change.

The recent provisions in the Marrakesh Accords for prompt start of small scale CDM projects are aimed at these objectives only. The Kyoto commitments shall thus mean that there would be available finance for these distributed renewable projects.

Courtesy : Development Alternatives
April 2002, P12,
Fax: 91-11-686 6031
E-mail: tara@sdalt.ernet.in
Web: www. devalt. org

CALENDAR OF EVENTS

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
1	Third International Conference on Sustainable Resource Mobilization: Developing Local Roots	Agra, India	The Resource Alliance, 295 Kennington Road, London SE11 4QE, UK. Tel: +44 20 7587 0287. Fax: +44 20 7582 4335 Email: enquiry@resource-alliance.org.uk Web: www.resource-alliance.org	4-7 March, 2002	
2	Symposium on "The Global Commercialization of Environmental Technologies"	Washington, USA	University of Washington, Battelle's Environmental Technology Email: hund@battelle.org Web: www.etc2.org	15 March, 2002	Environmental technologies
3	Symposium on Utilization of Greenhouse Gases (23rd ACS Meeting)	Florida, USA	Prof. Chang-jun Liu, State Key Laboratory of C1 Chemical Technology, Tianjin University-ABB Plasma Greenhouse Gas Chemistry Laboratory, PO Box 796666, Tianjin 300072, China. Tel: + 86 22 2789 0078 Email: changliu@public.tpt..tj.cn Web: www.acs.org/meetings/	7-11, April, 2002	
4	Intercem Workshop 'Cement Shipping Problems ahead?	Amsterdam, The Netherlands	BMS Limited 2nd floor, Hillcrest House, Woodcote Road, Wallington, Surrey SM 6OLT, England . Tel. +44(0) 20 8669 5222. Fax: +44(0) 20 8669 9926 Email: info@intercem.co.uk Website: www.intercem.com	8-9 April, 2002	
5	Rural Community Interaction and Workshop on Alternative Ways to Combat Desertification: Connecting Community Action with Science & Common Sense	Cape Town, South Africa	Roben Penny, Woodbine, Essex Road, Kalk Bay, 7975 Cape Town, South Africa. Fax: +27 21 788 1285 Email: robenpen@jaywalk.com	8-20 April, 2002	
6	2nd International Cement Conference	St. Petersburg, Russia	Petrocem Russia. Fax: +7(812) 2963906 Email: scement@peterlink.ru	14-18 April, 2002	Cement
7	18th Technical Symposium	Kuala Lumpur, Malaysia	AFCM Malaysia: Grace Okuda Fax: +60 37 492 1718 Email: cemca@tm.net.my	22-26 April, 2002	Optimisation in the cement industry
8	44th IEEE-IAS/PCA Cement Industry Technical Conference	Jacksonville, Florida, USA	Cary O. Cohrs Fax: +1362 472 2449 Email: caryc@FLArock.com	5-9 May, 2002	Cement manufacture
9	Role of Industry and Academia in Technology Development	New Delhi, India	Consultancy Development Centre, India Habitat Centre, Zone-IV, East Court, 2nd Floor, Lodhi Road, New Delhi- 110003. Tel: 4602915 Fax: 4602602. Email: cdc@giasdl01.vsnl.net.in Web: www.indianconsultancy.com	11 May, 2002	▪ The nuclear tests ▪ Test firing of Trishul missile ▪ Maiden test flight of HANSA-3 all composite two seater aircraft

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
10	N & S American Cement Conference	Miami, US	PRo Publications International Ltd., Fax: +44 1372 743838 E-mail: ec2002@propubs.com Web: www.propubs.com/ec2002	12-15 May, 2002	
11	Sustainable Development in the New Round	London, UK	Chatham House, 10st James's Square London, SW1Y 4LE, UK. Fax: +44 20 7957 5710 Web: www.riia.org	13-14 May, 2002	
12	Arab-African Conference and Exhibition for Construction and Building Products	Dakar, Senegal	Arab Union for Cement and Building Materials (AUCBM), P.O. Box 9015, Damascus, Syria. Fax: +963 612 1731/611 318 Email: aucbm@net.sy Web: www.aucbm.org	28 May- 01 June, 2002	
13	Seminar on R&M Uprating and Modernization of Power Units	New Delhi India	The Secretary General, Council of Power Utilities, A-2/158, Janak Puri, New Delhi- 110058. Tel: 91-11-5618472. Fax: 91-11- 561 1622 Email: cvj@vsnl.com Web: www.indida-power.org	June, 2002	
14	Businesscem	Moscow, Russia	Mrs Irina Valioukova, Fax: 7 (095) 977 49687 Email: valev@businesscem.msk.ru	3-5 June, 2002	
15	4th World Congress on Environment Management & International Mountain Convention	Palampur, HP, India	World Environment Foundation, 1 Northumberland Avenue, Trafalgar Square, London WC 2N5BW Tel: 44 207 724 8001/207 872 5784 Fax: 44 207 723 6072 Email: wef.wem@virgin.net Web: www.wef.org.uk	7-9 June, 2002	▪ Sustainable development through good governance & ▪ Sustainable solutions for mountain eco-systems
16	First International Conference on Thaumasite in Cementitious Materials	Watford, UK	Angela Mondair, BRE, Garston, Watford WD 25 9XX, UK. Tel: 0044-1923 664775 Fax: 0044-1923 664790 Email: mondaira@bre.co.uk Web: www.bre.co.uk	19-21 June, 2002	
17	National Seminar on Recent Challenges in Civil Engineering	Hyderabad, India	Mr. K.N. Chnadrasekharan, Organizing Secretary, RCCE 2002, 810 Road No.2, Castle Hills, Masab-tank, Hyderabad – 500 057 Tel: 040-353 5241 Fax: 040-353 5442 Email: shekar1@satyam.net.in	21-22 June, 2002	
18	Intercem 2002	NogaHilton Geneva, Switzerland	BMS Limited 2nd floor, Hillcrest House, Woodcote Road, Wallington, Surrey SM 6OLT, England . Tel. +44(0) 20 8669 5222. Fax: +44(0) 20 8669 9926 Email: info@intercem.co.uk Website: www.intercem.com	26-27 June, 2002	Ongoing changes in cement industry and trading, transportation, handling of cement or related products.

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
19	Conference & Exhibition on Industrial Safety & Environment Management	Mussoorie, India	Greentech Foundation 809, Vishwadeep Tower, Distt. Centre, Janak Puri, New Delhi- 110058 Tel: 91-11- 5593846 Fax: 91-11-5593846 Email: ksharan@mantraonline.com Web: www.greentech.org	26-28 June, 2002	Debate and develop sustainable action plan and professional development
20	National Seminar on Scientific & Safe Mining -Emerging Challenges	Bangalore, India	Sri Meda Venkataiah, Convener & Secretary, Mines Safety Association of Karnataka, MSPL Limited, Hospet. Tel. +91-8394-28402, 28501 Fax: +91- 8394-24537 Email: medaoba@yahoo.com	2-3 July, 2002	▪ Status of scientific mining scenario and its future prospects ▪ Status of safety in mining and future scenario ▪ Mining legislation
21	International Conference & Business Meet on Non-Fossil Fuel Generation	New Delhi, India	Energy Department, Confederation of Indian Industry, Gate No. 31, North Block, Jawaharlal Nehru Stadium, New Delhi- 110003. Tel: 4367901/4366225 Fax: 4362136/4367844. Email: v.raghuraman@ciionline.org Web: www.ciionline.org	5-7 July, 2002	
22	Strategies for Energy Conservation in the New Millennium	New Delhi, India	Team Leader-Energy Division, Federation of Indian Chambers of Commerce and Industry, Federation House, Tansen Marg, New Delhi – 110001. Fax: 91-11-3320714. Email: power@ficci.com Web: www.ficci.com/energyconservation	23-24 August, 2002	▪ Evolution of a road map/action plan for energy efficiency both at the centre and state level. ▪ Development of energy efficiency standards and norms for industrial products, equipment and processes as well as energy conservation codes for buildings ▪ Facilitating energy conservation through innovative financing as also promotion of ESCOs ▪ Promotion of research & development and transfer of technologies as well as creating facilities and mechanisms for technology verification and undertaking technology demonstration projects etc. ▪ Development of sectoral strategies to conserve energy in energy intensive sectors like cement. ▪ Sharing of international experience in energy conservation
23	Conference on Dams and Development	New Delhi, India	The Secretary General, Council of Power Utilities, A-2/158, Janak Puri, New Delhi- 110058. Tel: 91-11-5618472. Fax: 91-11- 561 1622 Email: cvj@vsnl.com Web: www.indida-power.org	11-12 September, 2002	

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
24	ENVIRO INTERNATIONAL 2002- 3rd International Trade Fair and Seminars on Minerals, Metals & Metallurgy	New Delhi, India	Tafcon Group, C-60, Nizamuddin East, New Delhi-110013. Tel: 91-11-4352141/44/82/84 Fax: 91-11-4355215 E-mail: tafcon@del2.vsnl.net.in Web: www.tafcon.com	12-15 September, 2002	Technologies & equipment for environment protection
25	Eleventh Cemtech Conference	Athens, Greece	International Cement Review, Cemtech Conference Ltd., Old Kings Head Court, 15 High Street, Dorking, England . Fax: Cemtech Manager- +44 1306 740660 Email: info@CemNet.co.uk Web: www.CemNet.com	15-18 September, 2002	Latest technical and strategic development in cement manufacture worldwide
26	INDIA CHEM 2002	New Delhi, India	FICCI Trade Fair Secretariat, FICCI, Federation House, Tansen Marg, New Delhi- 110001. India. Tel: 011- 3738760-70 Fax: 91-11-3320714, 3721504. Email: ficciexhibition@vsnl.net	18-21 September, 2002	Chemicals, Pharmaceuticals, Petrochemicals and Technologies, Process plant and machinery, Control and Automation system
27	VDZ 5th International Congress	Dusseldorf, Germany	Dr. M. Schneider, Tel: +49 211 4578 204 Fax: +49 211 4578 364 Email: kongress@vdz-online.de	23-27 September, 2002	Process Technology of Cement Manufacturing
28	GHTG-6, Sixth International Conference on Greenhouse Gas Control Technologies	Japan	GHTG-6 Secretariat, Norifumi Matsumiya, Research Institute of Innovation Technology for the Earth, Planning and Survey Department, 9-2 Kizugawadia, Kizu-cho Soraku-gun, Kyoto 619-0292, Japan Tel: +81 774 752 314 Fax: +81 774 752 314 Email: ghtg@rite.or.jp	30 Sept.- 4 October 2002	
29	The First fib Congress on Concrete Structures in 21st Century	Osaka, Japan	The Secretariat, fib 2002, Osaka Congress, Japan Prestressed Concrete Engineering Association, Tsukudo-cho 4-6, Shinjuku, Tokyo 162-0821, Japan. Tel: 81-3-3260 2521. Fax: 81-3-3235 3370 Email: fib2002@jpcea.or.jp	13-19 October, 2002	
30	International Conference & Exhibition on Sugar Mill Cogeneration	New Delhi, India	Outreach Cell, Winrock International India, 7 Poorvi Marg, Vasant Vihar, New Delhi- 110057. Tel: 91-11-6142965 Fax: 614-6004. Email: winrock@vsnl.com Web: www.winrockindia.org and www.renewingindia.org.	24-26 October, 2002	
31	Fifth International Symposium on Cement Concrete (5th ISCC)	Shanghai, China	Dr. SUI, Tongbo-Associate Professor, China Building Materials Academy, Guanzhuang, Chaoyang District Beijing – 100024. P.R. China. Tel: +86 10 65761325. Fax: +86 10 65761714 Email: snxcs@public3.bta.net.cn	28 Oct. – 1 Nov. 2002	▪ Technology and equipment for cement making; ▪ Blended cements and special cements; ▪ Cement concrete and products; ▪ Basic research and experimental techniques; ▪ Circulation and trade of building materials

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
32	AUCBM 12th International Cement Conference	Marrakech, Morocco	Arab Union for Cement and Building Materials Fax: +963-11-6121 731/6111318	End October 2002	
33	European Cement Conference – 3rd European Conference and Exhibition	Prague, Czech Republic	PRo Publications International Ltd., Fax: +44 1372 743838 E-mail: ec2002@propubs.com Web: www.propubs.com/ec2002	4-5 November, 2002	
34	3rd World Flexible Intermediate Bulk Container 2002	Antwerp, Belgium	Millenium Conferences International Ltd. Tel: +44 (0) 1628 580 246 Fax: +44 (0) 1628 580 346 Email: FIBC2002@milleniumconferences.com	6-7 November, 2002	
35	International Conference on Protection of Structures against Hazards	Singapore	Er. John S.Y. Tan, The Conference Director, CI Premier Pte. Ltd., 150 Orchard Road, #07-14, Orchard Plaza, Singapore- 238 841 Tel: 0065-733 2922. Fax: 0065-235 3530 Email: cipremier@singnet.com.sg Web: www.cipremier.com	14-15 November, 2002	
36	International Seminar on Mining, Technology and Management for Business Excellence (MTM-2002)	New Delhi, India	Mr. C.L.V.R. Anjaneyulu, Secretary General, Mining Engineers' Association of India, No.1, Gr. Floor, My Home Mount View Appartments, Navodaya Colony, P.O. Srinagar Colony, Hyderabad – 500073. Tel: 040 3740343. Email: meai@hd2.dot.net.in	15-16 November, 2002	
37	CEMENT EXPO:2003 Sixth international Exhibition & Seminar	Mumabi, India	Wadhera Publications, General Assurance Building, 1st Floor, 232, D.N. Road, Fort, Mumbai – 400 001. Tel: 022-2071244/2076918 Fax: 2072102	26, 27 & 28 Noveember, 2002	
38	2nd International Trade Fair on Construction Equipment & Construction Technologies	Bangalore, India	Confederation of Indian Industry, 35/1, Abhiramapuram, 3rd Street, Alwarpet, Chennai – 600 018. India. Tel: 91-44-4987648/49. Fax: 91-44-4660312 Email: j.i.maheshkumar@ciionline.org Web: www.ciionline.org	4-7 December, 2002	▪ Road building equipment ▪ Concreting equipment ▪ Construction vehicles ▪ Earthmoving equipment ▪ Heavy construction equipment ▪ Light construction equipment etc.
39	12SEE-2002: 12th Symposium on Earthquake Engineering	Roorkee, India	Organising secretary, Department of Earthquake Engineering, Indian Institute of Technology, Roorkee – 247 667, India. Fax: +91-1332-76899/73560 Email: 12see@iitr.ernet.in	16-18 December, 2002	▪ Future attention for earthquake engineering ▪ Sharing latest knowledge among researchers/planners ▪ Mitigating the impact of earthquakes on natural and built environment
40	Third International Conference on New Dimension in Bridges and Flyovers	Singapore	Er. John S.Y. Tan, The Conference Director, CI Premier Pte. Ltd., 150 Orchard Road, #07-14, Orchard Plaza, Singapore- 238 841 Tel: 0065-733 2922. Fax: 0065-235 3530 Email: cipremier@singnet.com.sg Web: www.cipremier.com	18-20 December, 2002	

SN	EVENT	VENUE	ORGANISER	DATE	FOCUS AREA
41	XX All India Builders' Convention	Coimbatore, India	Chairman, BAI, Coimbatore Centre, M/s Sivaram & Company, 157, G.V. Residency, Coimbatore – 641028. Tel: 0422 – 575584. Fax: 0422 – 597945 Email: bai@vsnl.com Web: www.buildersindia.com	5th, 6th & 7th January, 2003	Construction machinery, building materials and services
42	Build Expo 2003: Exhibition of Construction Machinery & Materials	Coimbatore, India	Chairman, BAI, Coimbatore Centre, M/s Sivaram & Company, 157, G.V. Residency, Coimbatore – 641028. Tel: 0422 – 575584. Fax: 0422 – 597945 Email: bai@vsnl.com Web: www.buildersindia.com	5-11 January, 2003	Construction machinery, building materials and services
43	International Seminar on Mineral Processing Technology (MPT-2003)	Goa, India	Dr. A.K. Nandi, Convener, Mineral Information and Development Centre, 206, Gulmohar Apartments, Tilak Nagar- 440 010, Maharashtra. Tel: 0712-544317 (O) Fax: 0712-541017/521073 Email: mpt_2003@sify.com or aknandi@satyam.net.in	6-8 February, 2003	
44	World Tunnelling Congress 2002 on Reclaiming the Underground Space	Amsterdam, The Netherlands	WTC2003, C/o Conference Secretariat, VOR, P.O. Box 411, 2800 AK Gouda, The Netherlands. Tel: +31 (0) 182 539 233 Fax: +31 (0) 182 537 510 Email: info@wtc2003.nl	12-17 April, 2003	
45	9th International Symposium on Concrete Roads	Istanbul, Turkey	Turkish Cement Manufacturers' Association, P.O.B. 2 06582 Bakanliklar-Ankara, Turkey. Tel: 0090-312 287 3250 Fax: 0090-312 287 9272 Email: info@tcma.org.tr Web: www.tcma.org.tr	27-30 April, 2003	▪ Design and specifications – lifecycle cost ▪ Materials for concrete pavement ▪ Construction – Maintenance- Performance ▪ Safety- Environment- Low noise concrete
46	11th International Congress on the Chemistry of Cement	Durban, South Africa	ICCC 2003, Sandra Collier C/o Event Dynamics (Pty) Ltd. P.O. Box 98009, Sloane park, 2152, Johannesburg, South Africa. Tel: 27-11-7065010 Fax: 27-11-463 7195 Email: sandra@eventdynamics.co.za Web: www.iccc2003.org	11-16 May, 2003	"Cement's contribution to development in the 21st Century" covering both cement and concrete issues
47	19th World Mining Congress	New Delhi, India	The Organising Secretary, 19th World Mining Congress, The Institution of Engineers (India), 8 Gokhale Road, Kolkata – 700 020. Tel: +91(033) 2238311/14 Fax: +91(033) 2238345 Email: intnl@ieindia.org	1-5 November, 2003	"Mining in the 21st century.. Qua Vadis?" and direction for growth of the global mining industry

TECHNOLOGY, GLOBAL MARKET AND ETHICS

SK Sharma

Developing countries have become the sinks for absorbing the aberrations of the global market. A ripple in the developed nations becomes a blast in the developing world. Truly speaking, without the two worlds, rich and poor, the global market cannot function. It operates largely by transfer of resources from poor to rich nations through skewed trade practices.

This raises issues of global ethics. Is it fair for rich nations to bleed the poor nations? The more bothersome question is, is it fair for self-seeking political systems of poor nations to bleed the poor in their nations through their exploitative centralised polity? The two instruments through which ethics operate are the polity and the economic system. Both are heavily skewed in favour of the rich nations and the rich in the poor nations. While the global marketplace gives an illusion of global prosperity, in reality, it is a one way route to global disaster. The price that such illusory development is paying in terms of loss of environmental resources is totally irreversible.

While globalisation of ideas and ideologies is desirable, the global market is clearly a serious concern. Before we make any more blunders, we need to review in depth both the political and the economic system. It would be best to adopt a common sense approach, a methodology fast disappearing.

Social philosophers such as Gandhi have been highly critical of consumerism driven capitalism as being exploitative and unsustainable. Soviet type controlled socialism has collapsed. Chinese type neo-fascism may best be avoided. The question is, if both capitalism and socialism are undesirable, what is the type of economic system that can realise a sustainable world order.

Gandhi advocated an egalitarian economic system in which all have equal social, environmental, economic and political rights and opportunities, realised through true grassroots empowerment. Sadly, few understand his simple language. Gandhi favours free enterprise but operating under the discipline of empowered local communities. While leasing land, local communities can enforce that industry produces goods and services useful to society and generates wealth for creating productive employment and expansion, and for philanthropy, but does not indulge in ostentatious consumption.

Man must recognise the limits of science and technology. Notwithstanding the strides made in the twentieth century, science still has not been able to unravel the medium on which electromagnetic waves travel. To cover their ignorance, scientists call it ether but cannot explain it. Indian sages talked of celestial vibrations, OM, pronounced A-O-M, the three sounds instinctively made by a just born baby. According to them, such celestial vibrations pervade the universe. They are the creator, the protector and the destroyer. They can make man reach great spiritual heights. They carry the electromagnetic waves, and the internet. Sages have realised them. Science will never be able to unravel them. Physics needs to bow to metaphysics. Technology and markets to ethics.

Courtesy : Development Alternatives
May 2002, P 19, Fax: 91-(11) 686 6031
E-mail : tara@ sdalt. ernet. in
Web: www. devalt.org.

GET A NEW COMMUNICATION CULTURE

Ambika Sharma

Overlooking the strategic impact of the web is a huge mistake. To treat the Web as if it were an on-line brochure and manage it out of the operations department, could be disastrous. The web should be considered one of the most important determinants for the way you will do business in the future.

The internal communication component needs to be managed very differently from the external communication component. The key difference is that the former is more inward looking and represents your organization's in-house flows, while the latter is what you need to project to the outside world. These days it is not enough to do great communication work with the outside world. We also need to prove it to people in-house who may not intuitively understand the value of what we accomplish in order to help our organization succeed.

- Connect communication activities with project results and income generating means for the organizations.
- Set measurable communication objectives that are aligned with organizational goals, i.e. ways that the communication work done in the organization measures up directly or indirectly with its mandate.
- Identify specific measurement approaches to use in different situations, including objective analysis, benchmarking, interviews, focus groups or surveys.
- Translate qualitative findings into more concrete reports that capture the management's attention.
- One way to start developing an integrated communications strategy is to look at the nature of the different kinds of work the team will be doing and what kind of communication is needed to support that work.

Communication messages do not operate in a vacuum. Your organization must commit to reinforce the perceptions conveyed by the communication message. It must be built to last. While the message should present you in the most positive light, in the long run it is counter-productive to oversell or over-promise.

Courtesy : Development Alternatives
May 2002, P 18,
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JUST A MOMENT

R. G. Keswani

Start the day well

Is it a very good morning? If the day begins with my thoughts scattered in many different directions or with anxiety about a situation to occur later in the day, it will prove difficult to maintain a positive attitude throughout the day. This is because my first series of thoughts in the morning sets the pattern for the whole day. If I do not use the early morning hours to sort out my thoughts, what other time in the day will I find to perform such a task?

To sort out thoughts there needs to be clarity in the intellect. I have to check and see if there are any wasteful thoughts and, if there are, then remove them by adopting a positive and pure attitude. If there are wasteful thoughts, and I try to battle with them, it is as I am giving them life and strength. Wasteful and negative thoughts are created by a weak mind; they have no real foundation; they are only paper tigers. Instead of battling with them I should simply

create pure, positive thoughts which will automatically displace the weak, wasteful ones. For example, instead of thinking, "I must not get angry, I must not get angry", which is negative conditioning, it is better to think, " I understand why they behave that way".

See problems as opportunities

When a problem comes, do I panic or do I see it as a challenge? Sometimes the whole world seems like a problem; sometimes I need to create problems so as to keep myself busy. A problem is only a problem when I call it a problem. A situation is only as difficult as I want it to be. Difficulties and disappointments are the events which lead me to maturity. After all, wisdom does not necessarily come with age; it is the gift of experience.

I have the tendency to imagine that my problems are greater and more important than anyone else's. It is infact a subtle form of ego: the feeling that my problem is worse than your problem, so you must give me regard.

More often I am so confused clouded that I cannot see a clear way and of a given problem, with the result that fear and tension build up, and I become irritable and filled with self-pity. In that frame of mind the smallest obstacle becomes huge.

I keep running away from situations that I find disagreeable; and the further I run away from a problem, the more difficult it is to resolve.

Courtesy : IEEMA Journal Feb. 2002, P66
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Courtesy : ICI journal, Apr-Jun 02, P34.
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AN INTRODUCTION TO INTELLECTUAL ASSETS

www. iaequals.co. uk. Oct.2001.

An extract of "An Introduction to Intellectual Assets" delineates a new perspective to the knowledge economy, the information society etc. Businesses are now in an era where their intangible assets (e.g. knowledge, know-how, brands and information)give greater competitive advantage than premises, land, labour or hard graft. Hence, today's businesses need to shift their perspective – arguably businesses need a new perspective entirely and to move from the merely tangible to include the intangible. Glossary of a few of the intellectual assets are:

Intellectual Capital (IC): IC is "the intellectual, intangible and organi-sational assets" of a business. In other words, IC is knowledge with development and value generating potential.

Intellectual Assets (IA): IC can be described as having broadly two parts-Human Capital and Intellectual Assets. IA comprises things like know-how, company goodwill and reputation, databases, customer lists, brand names, patents etc, ie everything that remains when the employees have gone home. Human capital can leave the business and thus businesses should ensure translation of some of the Human Capital with IA, e.g. by the appropriate recording of the knowledge.

Intellectual Property (IP): IP is the more formally recognised and traditional form of intangible assets and includes trademarks, design rights, patents, copyright and confidential information.

Courtesy : WISTA Innovation May 2002, P19,
Fax: 91-11-4619083,
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SITE LAYOUT PLANNING

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" Site Layout Planning for Daylight and Sunlight: A Guide to Good Practice" has been published by BRE, UK. People expect good natural lighting in their homes and in a wide range on non-domestic buildings. Daylight makes an interior look more attractive and interesting as well as providing light to work or read by. Access to skylight and sunlight helps to make a building energy-efficient; and effective day- lighting will reduce the need for electric light, while winter solar gain can meet some of the heating requirements. This guide gives advice on site layout planning to achieve good sunlighting and daylighting , within buildings and in the open spaces between them. It complements BS8206: Part 2 – Applications manual: window design by providing advice on planning of external environment. The book discusses how to protect the day lighting and sunlighting of existing buildings when new developments are proposed.

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