



CFRI NEWSLETTER



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Established in November 1946: CFRI is a unique Institute of its kind in India under CSIR to conduct research in different areas of Fuel Science and Technology with emphasis on coal and lignite.

Mission: Enhance the position of the Institute as a premier R&D centre for technology development and transfer by forging strategic alliance with other agencies and continuously strive for excellence in the area of potential expertise for generation of basic knowledge, innovation and advanced concepts in science and technology for economic, efficient and environmentally safe energy management

HIGHLIGHTS OF COMPLETED PROJECT

Extended Studies on Long Term Effects of Fly Ash Application in Agricultural Lands of Birbhum (WB) and its Popularization through Field Demonstration.

(Sponsored by Fly Ash Mission, DST, Govt of India, New Delhi, completed in March 2002)

In a sequel to earlier study made on the project "Bulk Utilization of Fly Ash and Pond Ash in Agricultural Land of Birbhum, W.B.", started in 1996, extended study on long term effect of application of these ashes on the growth and yield of different crops and its impact on the quality of crop produce, soil, water bodies, especially in respect of carry over of trace and heavy metals and radionuclides was completed.

The obtained results revealed significant increase in yield (15-35% over control) of paddy crops grown with different doses of fly ash/pond ash without any adverse effect in respect of carry over of trace and heavy metals and radioactivity in the crop produce, soil and field/ground water. Farmers having seen the beneficial effect of fly ash applications in their own fields are fully convinced and using fly ash/pond ash in their fields for boosting the yield of different crops. The project work was successfully completed in view of its identified objectives and final report was prepared and submitted to funding agency (FAM, DST) with their full satisfaction.

Fly ash soil amendment technology pursued in the vicinity of BKTPP has tremendous socio-economic and environmental impacts.

FOREIGN VISIT

- Dr Kalyan Sen, Director, CFRI visited South Africa for techno-economic study for M/s. Jai Maa Kali Udyog Ltd., Dhanbad for setting up a Mini Flotation Plant. He also presented two research papers in XIV International

Coal Preparation Congress and Exhibition held at Marshall Town, South Africa from 11 to 15 March 2002.

- Dr Kalyan Sen, Director, CFRI visited Pennsylvania, USA on invitation of CLI group of Companies for discussion on design of washeries for power coal from 16 to 20 March 2002.

CSIR ANNUAL BUSINESS MEET-2002

Shri Partha Sengupta, Scientist, CFRI attended "CSIR Annual Business Meet 2002" and workshop on 'Strategy for Business Development in Information Technology' organized by NCL, Pune from 20 to 22 February 2002.

MoU SIGNED

A Memorandum of Understanding was signed on 19.03.02 between CFRI, Dhanbad and M/s. CLI Corporation, Canonsburg, USA for joint execution of projects in India and China.

TECHNICAL REPORTS SUBMITTED

- Report on comparison of gases emitted in stack by burning toluene di-isocyanate (TDI) tar powder in non-recovery type coke oven of M/s. Narmada Chematur Petrochemicals Ltd. Narmada Nagar, Bharuch, Gujrat.
- Standardization of automatic mechanical sampler at Kahalgaon Super Thermal Power Plant, Kahalgaon, Bihar.

PATENT FIELD BY CFRI

Fly ash based hard scouring powder by Raja Sen, U. Bhattacharya, D. P. Choudhury, L.N. Nandi and S. Moitra filed on 27.03.02 (India, USA and PCT).

PATENT INFORMATION: COAL AND ITS UTILIZATION

- ❑ US Patent No: 4093425, Process for Preparing Coal Briquettes for Coke and Apparatus for the Same.
Inventors: Araki, E. et al.
Assignee: Keihan Rentan Kogyo Co. Ltd. (JA)
Abstract: This invention relates to a process for preparing coal briquettes.
- ❑ US Patent No: 4272356, Coal Extraction Process
Inventors: Stiller, A. H. et al.
Abstract: Sub-divided coal is extracted under non-thermally destructive conditions with a solvent. This process substantially removes the non-fixed carbon content of coal.
- ❑ US Patent No: 4334977, Method for the Generation of Recycle Solvents in Coal Liquefaction
Inventors: Derbyshire, F. J. et al.
Abstract: A method is described to improve a coal liquefaction process using a recycle solvent. The recycled solvent thus obtained is more efficient and enables other significant process improvements.
Source: www.uspto.gov

LECTURES IN CFRI

- ❑ Prof. N. C. Saxena, Centre for Mining Environment, Indian School of Mines, Dhanbad delivered a lecture on "From Coal to Power: An Approach for Integrated Environment Friendly Management" on 22.01.02.
- ❑ Prof. M. K. Ghosh, Centre for Mining Environment, Indian School of Mines, Dhanbad delivered a talk on "Application of Factual Analysis Techniques to Assess the Contribution of Air Pollutants from different Major Sources" on 22.02.02.

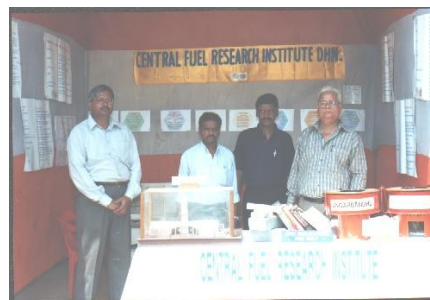
ISO RE-CERTIFICATION

The Lead Auditors of TUV India Pvt. Limited, Kolkata Shri V. S. Reddy, Shri A. Dasgupta and Dr. A. M. Chakraborty carried out the re-certification audit for ISO-9001: 2000 on 4th and 5th February 2002. After completion of audit, they made a presentation of their observation on 5th February 2002 followed by an announcement for recommendation of ISO-9001 Re-certification to CFRI.

PARTICIPATED IN MELA /BUSINESS MEET

- ❑ CFRI participated with its stall in Swadeshi Mela at DAV School Ground, Dhanbad organized during 20-24 March 2002. Hon'ble Chief Minister, Jharkhand, Shri B.L.Marandi inaugurated the Mela. Domestic chullah, model of soft coke oven, fly ash bricks based on the process know-how developed by CFRI were displayed and CFRI publications were exhibited to boost up their sale. Other proven technologies and technologies available for transfer were also displayed.

A good number of Mela visitors came to the stall and showed keen interest in the materials displayed. Literature was distributed among the interested persons. Visitors were also briefed about the know-how of the processes and products by the concerned scientists and officers present at the stall. Arrangement of Seminars on various topics was an added attraction of the Mela, wherein Shri Sudarshan Bhagat, Minister for HRD and Shri P.N. Singh, Minister for Industry, Govt. of Jharkhand graced the occasion as Chief Guests.



A view of CFRI exhibition stall at Swadeshi Mela, Dhanbad, 20-24 March 2002

- ❑ CFRI participated in International Conference and Business Meet on "Fossil Fuel Power Generation" at New Delhi from 21 to 23 March 2002. CFRI Scientists presented R&D papers and also put a stall in the conference hall to acquaint the business group about R & D achievements of the Institute. CFRI publications were also displayed in the stall for sale.

PAPER PRESENTED IN SEMINAR

- ❑ Relevance of Air Monitoring over Garbage disposal Plant by Bharti S. K. in 89th Session of 'Indian Science Congress' from 3 to 7 January, 2002 at Lucknow University, Lucknow.
- ❑ Influence of Meteorological Parameters on Airborne Ascospores over a Polluted Environment by Bharti S. K. in 89th Session of "Indian Science Congress" from 3 to 7 January 2002 at Lucknow University, Lucknow.
- ❑ Competitive Adsorption Equilibrium Studies of Some Hazardous Organic Pollutants on Activated Carbon", by Singh Shripal in 89th Indian Science Congress held from 3 to 7 January, 2002 at Lucknow University, Lucknow.
- ❑ Eco-restoration of Wasteland through Plantation of Medicinal/Aromatic Plants - A Case Study" by Singh A. K., Shrivastava N. K., Sarkar A., Jha S. K. and Singh G. in the seminar on 'Environmental Challenges of Jharkhand' held on 18 February 2002 at CFRI, Dhanbad
- ❑ Jharkhand Rajya Mein Ausadhi Evam Sugandhit Paudhon Ki Samashyen Evam Samadhan by Singh A. K., Sarkar A. and Singh G. in the seminar (in Hindi) on

'Swadeshi Swasthya-2002' held on 23 March 2002 at CMRI, Dhanbad.

THE PRESENT MANAGEMENT COUNCIL OF CFRI

Dr Kalyan Sen, Director, CFRI (Chairman); Shri Premchand, Scientist G., NML Jamshedpur, Dr K. K. Tiwari, Scientist F, Dr Rahul Dasgupta, Scientist EII, Shri S. Biswas, Scientist EI, Dr A. K. Singh, Scientist C, Dr Pinaki Sarkar, Sct. B, Shri Raja Sen, Gr. III (4), Shri B. D. Das, F&AO (all Members from CFRI) and Shri B. Nangia, COA, CFRI (Member Secretary)

LECTURE BY CFRI SCIENTISTS

- Dr S. K. Hazra, Scientist E-II delivered a lecture on "High Temperature Carbonization" in a workshop on 'Eco-friendly Technology for Better Environmental Management' jointly organized by CMRI, Dhanbad, NML and SIDBI, Jamshedpur on 30 January, 2002 at CMRI, Dhanbad.
- Dr Gulab Singh, Scientist F delivered a talk on "Bulk Use of Fly Ash in Agriculture/Forestry Sector and Waste land/Mine spoil Management vis-a-vis Associated Environmental Issues and Bio-reclamation of Abandoned Ash Pond" in a workshop on 'Various Activities of TIFAC' from 11 to 12. February 2002 at TIFAC, DST, New Delhi.

KISAN GOSTHI ORGANIZED

To popularize the bulk use of fly ash in agriculture and waste land management, a Kisan Gosthi, chaired by Dr V. Kumar, Mission Director, FAM (TIFAC), DST was organized by CFRI at Sudhiyal village, the experimental site for field demonstration on 27th March 2002 in which the officials of Harduaganj TPP, Block Development Office, Dist. Agricultural Deptt. were present along with a good gathering of local farmers (more than 60) and Gram Pradhans from different adjacent villages. Dr G. Singh, Scientist F and Dr L.C. Ram, Scientist EII apprised the gathering about the beneficial effects of pond ash application in agriculture sector and for reclamation of waste/degraded/alkaline land including better performance of last Kharif crop grown in pond ash amended fields. During discussion, the farmers themselves accepted the beneficial effects of pond ash in improving the texture of soil and crop yield (upto 40 percent). Further farmers emphasized over their demand for more supply of pond ash to their fields. Accordingly authorities of Harduaganj TPP ensured to provide the same. However, farmers capable to bear the transportation cost were suggested to transport the pond ash on their own cost.

Similarly other Kisan Gosthis were organised by CFRI Scientists (Dr N.K. Srivastava and Sri A. K. Sinha) at field

demonstration sites of Obra and Anpara on 8th and 10 March 2002 respectively. These Gosthis were also well attended by the officials of TPPs, Block Development office, Dist.

Agriculture Dept. along with a good number of local farmers and Gram Pradhans of different adjacent villages, who were fully convinced with beneficial effects of pond ash application for growing various local crops. After observing better growth performance of last crop, large number of farmers came forward with request for supply of pond ash to their fields.

Another Kisan Gosthi was organised by the scientists of CFRI on 30th March, 2002 at Pedampet, near Ramagundam S T P S, Ramagundam, Karimnagar (AP).

REVIEW MEETING

A review meeting on monitoring of the progress of various projects on "Field Demonstration Trials for Popularisation of Fly ash /Pond ash in Farmers Fields" sponsored by UPRVUNL, Lucknow was held on 8th march 2002, under the chairmanship of Dr V. Kumar, Mission Director, FAM (TIFAC), DST at New Delhi. The officials from Power Finance Corporation, New Delhi; UPRVUL, Lucknow and concerned TPPs also attended the meeting. The scientists from CFRI, Dr L.C. Ram and Sri R.C. Tripathi presented the progress of the ongoing project and responded to the queries made by the members who expressed their full satisfaction over the progress of the project.

INFRASTRUCTURAL FACILITY

X-ray diffraction, Model D-8 Advance, first of its kind, procured from M/s. Bruker, AXX has been installed successfully and placed into service.

NEW ARRIVALS IN CFRI LIBRARY

70 new books have been received in the library. Some of the important books are as under:

- Encyclopaedia of Technology and Applied Sciences in eleven volumes, Publisher-Marshall Cavendish, New York, 2000.
- Handbook of Pollution Control Processes, R. Noyes, 2001
- Intellectual Property Right: Unleashing the Knowledge Economy, P. Ganguly, 2001.
- Innovations in Mineral and Coal Processing, S. Atak, G. Onal and M.S. Celik, 1998.
- A Report on Web Designing, Md. B. Rafi, 2001.

- ❑ One CDROM on Information Technology and E-commerce along with the books on the same subjects in ten volumes, Publisher-Pentagon Press, New Delhi, 2001. CFRI IN MEDIA
- ❑ CFRI organized an awareness rally for their proposed blood donation camp to be held in the institute on 12 January 2002. In the last year's camp held in association with the Bijoy Sangh, Jharia around 80 units of blood were collected (*Hindustan Times*, 9 January 2002).
- ❑ Farmers jubilant over increase in yield of various crops grown with pond ash (*Dainik Jagran*, 9 March 2002 and *Umar Ujala*, 29 March 2002)

REPUBLIC DAY

Republic Day was celebrated on 26th January 2002. Dr Kalyan Sen, Director, CFRI hoisted the national flag in front of main building of the Institute. Director also addressed the gatherings giving brief outline of the work done by CFRI. Sweets were distributed among the children.

WORLD AROUND

Coal Demand and Production

Australia calls for export to rise by 20% over the next eight years, reported *Asia Pulse*. Bureau of Agricultural and Resource Economics (ABARE) reported that high rise in Asian electricity markets is likely to prove more crucial to Australian coal producers and as such Australian exports are likely to be 40 million mt up on current level. Brian Fisher, Executive Director, ABARE said Australia will retain its predominance in coal export with global coal consumption.

China's coal industry though turned out an overall profit in 2001 after heavy consecutive losses for a number of years, will still take three to five years to really get out of exigencies, said a Senior Government Official from China.

Newzeland's foreign demand similar to domestic demand for the country's coal is high and likely to grow to 2 million mt from 1.3 million mt within five years, reported Ontario-based *The Northern Miner*. Solid Energy, a Christchurch-based coal company, expects its exports to grow even faster over the next five years and by 2006 to the level of 4 million mt per year as compared to 1.7 million mt last year.

Source: *COAL AGE/March 2002*

www.coalage.com

US Carbon Sequestration Projects

As part of National Climatic Change Policy of US, President Bush recently announced that a high priority would be given to encourage new technologies that can reduce carbon emissions together with affordable energy

cost. Of these, carbon sequestration is a fast growing area of research in the US Department of Energy. These new research projects have been added to its research programmes, in which one project, if successful, will reduce the cost of energy for capturing CO₂, and other two projects will explore ways to store CO₂ safely and preferably permanently.

Alternative Solvent: Researches at the University of Texas, Department. of Chemical Engineering, Austin, Texas proposes to develop an alternative solvent that captures more CO₂ while using 25-50 percent less energy than conventional state-of-the- art MEA (mono-ethanolamine) scrubbing systems. The university plans to develop and establish a process model to optimize various parameters along with reduction in the cost of the process.

Ocean Sequestration of CO₂: The University of Massachusetts, Lowell, MA, will study a new idea for deep ocean CO₂-sequestration. In this model, liquid CO₂, water and finely ground limestone would be blended into an emulsion that could be pumped into the ocean for long term storage. This emulsion being heavier than seawater, it would be possible to inject CO₂ directly. The proposed study includes characterization of emulsion for structure, flow characteristics, and optimization of mixture of reagents to the emulsion in three phases.

CO₂ Storage in Black Shale: The university of Kentucky research foundation, in Lexington plans to study the CO₂ adsorption characteristics of Devonian shales and their possible use to store CO₂. By the study, the potential of particular shale for maximum sequestration will be studied.

All these projects are being funded by DOC in conjunction with non-government agencies.

Source: *Greenhouse Issues*, No. 59, March 2002.

EVENTS AHEAD IN CFRI

- ❑ CFRI Foundation Day on 22 April 2002.
- ❑ National Technology Day on 11 May 2002.

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