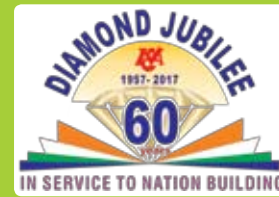


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CRIRSCO Annual Meet 2016 - Inauguration



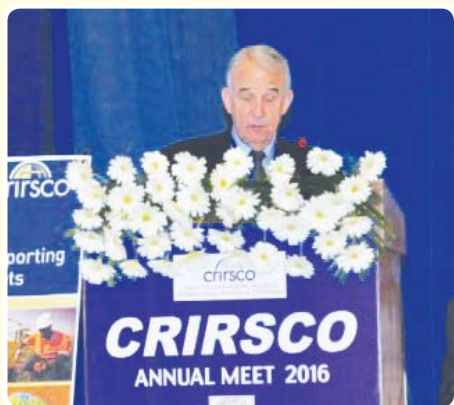
Mr T Victor receiving Chief Guest Mr. Balvinder kumar



Mrs Aparna Arora, IAS Guest of Honour entering MWC



Mr. Balvinder kumar, IAS with Dr Abani Samal



Mr. Ian Goddard welcoming delegates



Dr Harry parker addressing delegates



Mr. M Raju, Director General GSI



Mr. RK Sinha Controller General, IBM



Mr Balvinder kumar, IAS receiving CRIRSCO memento



Mrs Aparna Arora, IAS receiving MEAI Memento



Dr Abani Samal receiving MEAI Memento



Mr. OP Gupta proposing Vote of Thanks



View of the audience

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On Front Cover:

Group photograph of NCC Members with CRIRSCO Members in CRIRSCO Annual Meet 2016, Jaipur, Rajasthan, from 7th to 10th November 2016, hosted by Mining Engineers' Association of India.

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National Conference Health, Safety & Environment Issues in Mining

Jodhpur, Rajasthan

19th December, 2016

**Department of Mining Engineering, MBM Engineering College,
JNV University, Jodhpur, Rajasthan**



Being organized in collaboration with Country's one of the oldest Department of Mining Engineering, JNV University, Jodhpur, founded in year 1951. A good opportunity for industry and academia to meet and discuss solutions for achieving Healthy, safe and green mining to enhance productivity during mining.

Objective The primary objective of the event is to showcase the modern mine environment, best practices & effectiveness of occupational health & safety management in mines. To increase the productivity of mines, there is need to address the measures, mechanisms and policies & effective follow-up on Health, Safety & Environment during mining of mother earth. Part of funds from this conference shall be used for modernization of class room & environmental laboratory of Mining Engineering Department.

Theme Topics:

Occupational health and safety: Health and safety at mines. Hazardous substances & Use of explosives, Electrical safety and isolation, Physical hazards, Fitness for work, Travel and remote site health, Thermal stress, Noise and vibration, Specific hazards in underground mining (Fires, explosions, confined spaces and oxygen deficient atmospheres)

Environment: Environmental issues associated with exploitation of natural resources-Air quality, Noise and vibrations and Water use and quality, Mine Wastes & Hazardous materials, Land use and Biodiversity, Energy & Visual Impacts. Papers are invited on the subject theme. Abstracts of paper in English of not more than 300 words with full contact details should reach by 15th Oct. 2016. Full paper should be between 5000 -6000 words and are due by 20th Nov. 2016.

Registration Fee:

MEAI Members delegates	:	Rs 1000/- each delegate
Non-Members delegates	:	Rs 3000/- each delegate
		Rs 2000/- for each if Three or more Delegates from the same organization

Conference Proceedings:

The proceedings of the conference in brief form containing expected extended summaries would be provided to all the registered delegates. Full length paper would be provided on a USB memory stick at the conference. The Advertisements rates:

Front Cover Back/ Back Cover	:	Rs 50,000/-
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President's Message.....

It was like a world summit of eminent earth science professionals from 14 countries, converging together on one platform with the sole purpose of promoting **'Best practices in the classification and public reporting of Mineral Resources and Reserves'** worldwide ! Yes I am talking about the 'International Event' that was held at Jaipur, India, 7 to 10 November 2016, which was proudly hosted by our Association (MEAI).

Another remarkable achievement by MEAI in hosting this event is in bringing the concerned Government authorities to inaugurate and to witness this international event. It was evident from the presence of the Secretary, Ministry of Mines, Govt of India; Controller General, IBM, Govt of India; Director General, GSI, Govt of India and the Secretary, Ministry of Mines and Petroleum, Govt of Rajasthan, who graced the occasion as the Chief Guest and guests of Honour, respectively at the inaugural function on 7th Nov 2016. The current Chairperson and the past Chairperson of CRIRSCO were present on the dais among the other dignitaries at the inaugural function.

It was a magnificent 'world event' hosted and organized by MEAI during this Diamond Jubilee Year....

The Chief Guest Sri Balvinder Kumar, IAS, Secretary, MoM, Govt of India, during his inaugural address expressed his praises for MEAI for the initiative of bringing CRIRSCO to India and for developing international stranded for public reporting of mineral resources and reserves. He said, Government should have taken this initiative. However, he assured Government will join MEAI in this initiative. He expressed his admiration of the newly built 'Auditorium' at the Mining Welfare Centre, built by Rajasthan Chapter, Jaipur, through the support of MEAI members without any government support. He further expressed and appreciated MEAI for its active role played in nation building activities.

I will be failing in my duty if I do not mention about the dedicated effort (24 X 7 basis) by the leadership of Rajasthan Chapter, Jaipur, in completing the civil construction and the whole infrastructure for a five star type Auditorium which was created within a short span of about 4 months time ! 'Seeing is believing', one should see in person this wonderful Auditorium and the Mining Welfare Centre, you will feel proud to be member of MEAI !! I record my whole hearted appreciation and praises to this youngest Chapter among 24 Chapters of MEAI. On behalf of the entire membership of MEAI, I congratulate and convey our best wishes to them.

CRIRSCO Annual Meet 2016, a four days event. It was a magnificent 'world event' hosted and excellently organized by MEAI during this Diamond Jubilee Year. It will be written in letters of gold in the history of 60 years of existence of MEAI. (I would request the readers, and those members who could not attend this event, to see through the pages of this special issue of MEJ-Dec 2016, for a detailed 'Report' and the photo gallery , to get a feel of this historic event.)

Goa, 22 November, 2016

T. Victor

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EDITORIAL



Dr. H. Sarvothaman
Editor, MEJ

In our role as the mining and mineral industry professionals, the term 'natural resources' gives most of us the first and a direct connotation to the minerals and ores. A few obviously well-known natural materials which we have learnt as the natural resources, such as the ores of gold, copper, lead-zinc, iron, as well as coal, bauxite and so on come to the mind as a flash. With some broadening of our own personal knowledge-base, the term natural resources gives us idea of petroleum, marble, limestone, mica, clay, diamond, and the like. Still on a higher level, we think of the fertilizer, strategic, critical and rare-earth minerals, and a few high-temperature alloy-ores that are essential in defense and space technologies.

In the course of a session on the environment science with a group of about 18-year old first year undergraduate students, they were asked to name a few 'natural resources'. Pat came the reply from a girl in one of the middle row benches—"Water". Indeed, it was a pleasant surprise that at such young age someone recognized the water as an important natural resource. Rightly so.

...water should occupy the cardinal space and place in the list of natural resources...

Water should be the first natural commodity or resource that needs to be conserved, restored and developed 'sustainably'. The frequently quoted definition of the 'sustainable development' concept is from Bruntland Report which sums it up as 'the Environmental, Economic and Social well-

being for today and tomorrow'. It is the 'development that meets the needs of the present without compromising the ability of future generations to meet their own needs'. Countries might goof up managing any other natural resources and still be able to survive, but if the water resource is not managed well, it might take decades to come out its ill-effects. Future generation needs to get educated about developing water as the fundamental natural resource.

It is in this context it needs to be harped upon by the current civil society on the future citizens right from their tender age that water is the foremost natural resource and is the most precious stock that a country can think of possessing. The misuse and abuse of water and its resources happens essentially due to the fact that a vast number of populations does not regard or recognize water as the natural resource to be used judiciously. As a matter of fact, water should occupy the cardinal space and place in the list of natural resources a country is blessed with.

Though the water by itself constitutes the hydrosphere, it holds key to the Life on the Planet Earth, and sustains Life on the entire biosphere. Therefore, water and life are intimately intertwined in the ecosystem. For the living organisms including humans living in the biosphere that depend on freshwater for their survival, 95% of the water-content in the hydrosphere is stocked as saltwater in the oceans and seas. Only 5% of the water resource of the Earth is freshwater fit for consumption of the terrestrial living organisms including humans.

The 149-million square-kilometer area or 29.22% of the landmass constituting the five continents, cumulatively possesses this 5% freshwater stock. To add to the misery of living beings in the continental biosphere, 4 out of this 5%, meaning 80-percent of the available freshwater stock, is estimated as frozen-freshwater located at the polar regions (Arctic and Antarctic regions) and at high-altitude areas like Himalayan and Alpine mountains. Effectively, therefore, only a meager 1% of the total water resources of the Earth is available as liquid freshwater to support the Life on the continental biosphere. We, the human beings, have to share this 1% fresh water resource with the coexisting plants and animals. This basic information on Water, the natural resource to which the Life is hinged should awaken us, including the lawmakers, to firm up policies for the sustainable development of Water Resource. Discussion on this will continue in the forthcoming issues.

REPORT ON CRIRSCO ANNUAL MEET 2016

AN INTERNATIONAL EVENT HOSTED BY MINING ENGINEERS' ASSN OF INDIA AT JAIPUR, INDIA

The Annual event of CRIRSCO was held in India at the historic Pink City, Jaipur by the '**Committee for mineral reserves International reporting standards**' (CRIRSCO), from 7th to 10th November 2016, hosted by Mining Engineers' Association of India.

In the interest of the professional development of the professionals from Indian mineral industry and to promote the best practices in the classification and public reporting of mineral resources and reserves, the CRIRSCO management had kindly resolved to assign 'Open sessions' on the first two days while reserving the last two days for its internal discussions. It is a rare opportunity bestowed on MEAI, to host this prestigious international event.

Thirty five foreign delegates from CRIRSCO member countries - Australia, Brazil, Canada, Chile, Europe, Kazakhstan, Mongolia, Russia, South Africa and USA - and observers from other countries such as China, Philippines and Indonesia have participated in the event. Besides, over 100 delegates from India, representing various organizations, government agencies and corporate houses involved in mining and exploration.

The Open Sessions were primarily intended to deliberate on all finer aspects of the Internationally recognized reporting standard 'CRIRSCO Template' and initiatives of CRIRSCO to promote best practices in public reporting of mineral resource and reserves, to enlighten the delegates, consisting of stakeholders from the Indian government and regulators, public sector and private sector exploration & mining companies, prospective investors, financial bodies, consulting companies, academic institutions, and professional organizations; and help them leave with the sign of fulfillment and clarity. 'Reliable Mineral Resource/ Reserve reporting: journey in India towards modernization of reporting guide' was the theme of the open sessions. Speakers representing the above stakeholders from India were invited to present their viewpoint on current practices adopted in reporting mineral resources and reserves. Experts from various CRIRSCO member countries made presentations on CRIRSCO initiatives worldwide and as it is relevant to India. The CRIRSCO experts also offered clarification on many hazy points such as reciprocity and role of CRIRSCO.

Inaugural function

The registration of over 140 delegates from India and abroad to attend the Open Session was completed between

9:00 am and 10:00 am in the Mining Welfare Centre. The Inaugural function of the CRIRSCO Annual Meet 2016 was organized with usual pomp and show at the newly created Mining Welfare Centre of MEAI Rajasthan Chapter-Jaipur between 10:00 am to 11:30 am. The MEAI President Mr.T. Victor and CRIRSCO Chairperson Mr. Ian Goddard jointly presided over the inaugural function. Mr. Balvinder Kumar, IAS, Secretary, Ministry of Mines (MoM), Government of India graced the occasion as the Chief Guest and inaugurated the conference by lighting the lamp. Mr. RK Sinha, Controller General, Indian Bureau of Mines (IBM), Government of India; Mr. M Raju, Director General, Geological Survey of India (GSI), Mrs Aparna Arora, IAS, Secretary, Ministry of Mines and Petroleum, Government of Rajasthan and Dr Harry M Parker, CRIRSCO immediate Past Chairperson; were the guests of honour. Mr. OP Gupta, Chairman, MEAI-Rajasthan Chapter-Jaipur; Dr Abani Samal & Dr PV Rao, Co-Chairs, National Core Committee (NCC) joined the guests were seated on the dais. Dr PV Rao navigated the entire proceedings as Master of Ceremony.



Mr. Balvinder Kumar inaugurating the conference along with other dignitaries

Mr T Victor welcomed the Chief Guest, Guests of Honour, other dignitaries on the dais, CRIRSCO delegates, guests and Indian delegates, and presented his introductory remarks. He eloquently detailed the significant role being played by MEAI in steering the unique initiative through its National Core Committee, with the cooperation of CRIRSCO management. 'Nation First' is the 'motto' of MEAI under which this initiative is taken for the ultimate goal of achieving progress and prosperity to the Nation, he emphasized.

Mr. Ian Goddard welcomed all the guests and delegates to the CRIRSCO Annual Meet 2016 and highlighted the salient points to be covered in the conference. He recognized the support extended by the host MEAI in organising the four-day meet at Jaipur. Dr Harry Parker narrated the series of steps being undertaken in India under the leadership of MEAI-NCC to fulfill the terms of reference of CRIRSCO.

Mr. RK Sinha explained the role of government in promoting ease of doing business through several amendments to the existing Acts and Rules; and also introducing new legislations in the mineral sector. He expressed confidence that all these actions will yield the desired results in attracting the much needed investments in the mineral exploration and mining activities of India. He also expressed the need to adopt internationally recognized and investor friendly mineral reserve reporting standards.

Mr. M Raju spoke on the potential of undertaking extensive exploration activities in India at G4 (reconnaissance) to G2 (General) levels and the critical role being played by Geological Survey of India. He detailed various progressive steps being implemented by GSI in sharing the valuable geological reports from its archives with the potential investors. He felt that the private exploration agencies have a much larger role to play in systematically exploring the exploration targets.

Mrs Aparna Arora, in her interesting speech, touched up on the mineral wealth potential of Rajasthan and the steps being taken by the government in accomplishing the necessary minimum exploration work before successfully auctioning the mineral blocks. She stressed the need to present mineral resource reports as per international reporting standards.

Mr. Balvinder Kumar, Chief Guest, at the outset, was pleased to notice the magnificent ambience and arrangement of the 'Conference Hall' of Mining Welfare Centre built by the Jaipur Chapter of MEAI, by the support of the members of MEAI and through their own resources, without any support from the Government. He whole heartedly appreciated the dedication and effort of MEAI as a whole. He did not forget to mention the active role played by MEAI for the professional development of its membership as well as the interest and involvement by MEAI in the legislative reforms initiated by

the Government of India in the recent months. He further spoke eloquently on topics related to improving the policy perception of the government, ease of doing business and attracting investments in the mining sector. He narrated various steps being implemented by the government to maximize the bids from the mineral blocks auctioning process in India. He recognized and also emphasized the need to adopt internationally recognized and transparent mineral reserve reporting systems like CRIRSCO Template by the global stock exchanges and assured all the support in making India as a member of CRIRSCO. This major assurance from the Chief Guest received all round applause from the packed audience. He also appreciated the good professional work being spread by the MEAI by bringing together all the leading professional bodies representing the mineral industry and forming the NCC.



Mr. Balvinder Kumar addressing the conference delegates from dais

The inaugural function ended with vote of thanks proposed by Mr. OP Gupta and presentation of mementos to all the guests seated on the dais. Mr. OP Gupta profusely thanked the Secretary, MoM for accepting his invitation to attend the conference and also assuring his wholehearted support for this national initiative lead by MEAI.

Open Sessions

After the reassuring inaugural function, the Open Session consisting of technical sessions for 7-8 November 2016 was slated to follow. India is a vast country bestowed with all types of minerals including coal to diamonds, precious to base metals, ferrous and non-ferrous minerals, Uranium

to beach sand heavy minerals and oil & gas. Every effort was made by the organizers to accommodate relevant presentations from all the stakeholders and give coverage to most of the important minerals.

On 7th November 2016, 4 Technical Sessions (TS), one before lunch and three after lunch were conducted. Each presentation was evenly provided with 15 minutes duration and at end of each technical session there was 15 minutes Q&A and Discussion. The 1st TS (Chairs: Mr. Ian Goddard Chairperson CRIRSCO and Dr PV Rao, CRIRSCO Rep in India) covered four presentations from CRIRSCO management and one from International Seabed Authority (ISA). 2nd TS (Chairs: Mr. Ian Goddard, Chairperson CRIRSCO and Dr Pratima Jauhari, ISA Secretariat) was dedicated to presentations from government agencies viz. Rajasthan State DMG, Atomic Minerals Directorate (AMD), GSI and Ministry of Earth Sciences (MoES). 3rd TS (Chairs: Mr. Neil Wells, Deputy Chair CRIRSCO and Dr A Srikant, Prof of Mining Engineering, IIT Kharagpur) and 4th TS (Chairs: Mr. Neil Wells, Deputy Chair CRIRSCO and Dr Abani Samal, CRIRSCO Rep in India) covered 9 presentations from the Indian mining industry and by NCC members. In all, the NCC was represented in the CRIRSCO Annual Meeting 2016 by 16 of its members from different parts of India.

On 8th November 2016, three technical sessions, two before lunch and one after lunch, were conducted. The 5th Ts (Chairs: Dr Harry Parker, Past Chair CRIRSCO and Mr. T Victor, President MEAI) and 6th TS (Chairs: Dr Harry Parker, Past Chair CRIRSCO and Mr Arun Kothari, Vice President-I MEAI) outlined 7 presentations each TS from CRIRSCO NROs and Observers, highlighting CRIRSCO updates from each member country. The 7th TS (Chairs: Mr. Ken Lomborg, Secretary CRIRSCO and Dr TRP Singh, Hony Advisor MoES) consisted of 3 presentations from the Mining consulting companies.

The 35 presentations from CRIRSCO and India made in the above mentioned 7 technical sessions in 2 days of Open Sessions covered the best practices in estimation, classification and reporting of mineral resources and reserves; and also the current practices being adopted by GSI, State DMGs, AMD, MECL, MoES, ISA, NMDC, PwC, Tata Steel, Vedanta Resources-HZL, Trimex, DMT, Geovale and SRK in great detail. The delegates appreciated the lacunae in the currently followed system in India and the need to adopt transparent, unambiguous and internationally accepted public reporting system if the government is serious about attracting investments in the mineral industry and enhance its contribution to the National GDP. It was also recognized that there is an urgent need for the NCC to simultaneously develop the draft Indian Code for reporting exploration results, mineral resources and reserves; and

also develop amendments to address the Code of Ethics and disciplinary procedures in the MEAI bylaws.

Valedictory function

The valedictory function was held on 8th November 2016 at 4:00 pm in the Mining Welfare Centre.

The MEAI Vice President-1 Mr. Arun Kothari and CRIRSCO Deputy Chair Mr. Neil Wells presided over the valedictory function. Mr Ken Lomborg, CRIRSCO Secretary and Mr. PC Bakliwal, Secretary, MEAI Rajasthan Chapter-Jaipur were guests of honour. Mr. Ankush Agrawal, Head Rajasthan Operations- CAIRN India graced the occasion as Chief Guest and Mr. Samarendra Roy Chaudhury, Consultant-Head, CAIRN as Guest of Honour. Dr Abani Samal and Dr PV Rao, Co-Chairs of NCC were on dais with the guests.



Bouquettes presentation to Mr. Ankush Agrawal

Mr. Arun Kothari spoke on how Jaipur was chosen as the CRIRSCO Annual Meet 2016 venue and the entire program was conceived by the organising committee. Mr. Neil Wells spoke on how CRIRSCO conducts its annual meetings in different parts of the world to encourage the prospective members to join CRIRSCO.

Mr. Ankush Agrawal praised the efforts of the organizers in successfully holding the CRIRSCO Open session and helping the Indian mineral industry professional in updating their knowledge in the international reporting standards.

Mr. PC Bakliwal thanked all the concerned for their cooperation and support in successfully holding the two-day Open session at Jaipur. He also thanked all the guests and



Mr. Arun Kothari and Mr. Neil Wells addressing the delegates

delegates for their presence in the MEAI conference dinner organized at Nahargarh Fort on 7th evening. Special gifts were presented to the accompanying spouses of CRIRSCO members and female delegates on behalf of the Organising Committee by Mr.T.Victor and Mr.O.P.Gupta.

The two-day Open session ended with vote of thanks proposed by Dr Abani Samal, Co-Chair, NCC. He thanked the CRIRSCO members and Observers for choosing Jaipur-India as its venue and extending all the guidance in holding the technical sessions. He also thanked the Advisory Committee for the guidance and the Organising Committee headed by Mr. T Victor for making elaborate arrangements for this international event where 13 foreign countries participated. He conveyed thanks to the NCC members for their tireless voluntary service to promote this initiative, and the delegates for their participation in the discussions. Last but not the least; he thanked Mr. Arun Kothari, Mr. OP Gupta, Mr. PC Bakliwal and team at Jaipur for making wonderful arrangements for comfortable travel and stay of the overseas guests at Jaipur.

CRIRSCO signed MoU with Indonesia

Mr. Ian Goddard, Chairperson CRIRSCO signed MoU with Mining industry representatives from Indonesia on 8th November 2016 in the presence of all the guests and delegates at Mining Welfare Centre. Mr. Arif Zardi Dahilus, Mr. Jimmy Gunarso, Mr. Andre Alis, Mr. Yoseph Swamidharma and others from Indonesian team, and all CRIRSCO members were present during the MoU signing ceremony.

CRIRSCO Meeting with NCC

This meeting was held in the Mining Welfare centre



Mr. PC Bakliwal and Dr Abani Samal proposing Vote of Thanks



Mr. Ian Goddard, Chairperson CRIRSCO and Indonesian Representative signing MoU

Conference hall located in the Ground floor on 8th November 2016, where CRIRSCO executive body was also present. This meeting was organized on the request of Chinese

delegation to understand on how the MEAI is taking forward the CRIRSCO initiative in India.

Mr T Victor, President-MEAI and Dr.P.V.Rao, and Dr.Abani Samal, Co-chairs of NCC spoke on behalf of MEAI, while M/s.Arun Kothari and Madhusudana, Vice Presidents of MEAI were present. Mr Wang Shao Bo, Vice Director, Department of Mineral Resources and Reserves, Ministry of Land & Resources, PR China; and Prof Zhang Dawei, Director, The Mineral Resources and Reserves evaluation centre of the Ministry of Land & Resources, PR China spoke on behalf of the Chinese delegation but translated by Mr. Yang Yang. Mr. Peter Stoker, Member JORC facilitated the discussion. The discussion was mainly concentrated on how the CRIRSCO initiative is being taken forward in India by NCC, as like PR China, India is also adopting UNFC for Mineral Resource and Reserve classification. The meeting ended with the Chinese delegation exchanging gifts with the Indian team.

It was clarified to CRIRSCO that Dr Abani is responsible for corresponding with CRIRSCO; Dr PV Rao is responsible for dealing with the NCC and other stakeholders, and developing draft Indian code; and Mr. T Victor to coordinate with other professional bodies and deal with the MEAI Council to make amendments to the MEAI bylaws. The leaders of six standing committees will work and submit draft reports in their respective areas for further compilation by the NCC Co-Chairs and taking it forward with the CRIRSCO.



*Group photograph of NCC Members with CRIRSCO Members
(Sitting L to R: Dr Abani Samal, Dr Harry Parker, Mr. Ian Goddard, Mr. T Victor, Dr PV Rao and Mr. TN Gunaseelan)*

The meeting ended with Mr. Ian Goddard expressing his happiness with the progress made in India in such a short period and presenting CRIRSCO gifts to all the NCC members.

Chinese Observers and MEAI leaders Meeting

This meeting was held in the Mining Welfare centre Conference hall located in the Ground floor on 8th November 2016, where CRIRSCO executive body was also present. This meeting was organized on the request of Chinese

delegation to understand on how the MEAI is taking forward the CRIRSCO initiative in India.

Mr T Victor, Mr. Arun Kothari and Mr. K Madhusudan spoke on behalf of MEAI. Mr Wang Shao Bo, Vice Director, Department of Mineral Resources and Reserves, Ministry of Land & Resources, PR China; and Prof Zhang Dawei, Director, The Mineral Resources and Reserves evaluation centre of the Ministry of Land & Resources, PR China spoke on behalf of the Chinese delegation but translated by Mr. Yang Yang. Mr. Peter Stoker, Member JORC facilitated the discussion. The discussion was mainly concentrated on how the CRIRSCO initiative is being taken forward in India by NCC, as like PR China, India is also adopting UNFC for Mineral Resource and Reserve classification.

The meeting ended with the Chinese delegation exchanging gifts with the Indian team.



The CRIRSCO hosted a formal cocktail dinner to the Indian guests in Hotel LaLit on 8th November 2016.

CRIRSCO Closed meetings

CRIRSCO closed door meetings held in Hotel LaLit on 9th and 10th Nov 2016 were attended by delegates from ten CRIRSCO Member countries, CRIRSCO representatives from India and China; and Observers from China, Indonesia and Philippines.

The CRIRSCO Annual Meeting concluded on 10th Nov 2016 with the conference dinner hosted by Mr. OP Gupta, Chairman, MEAI Rajasthan Chapter-Jaipur in Jai Club for all the CRIRSCO delegates and special invitees from India.

The CRIRSCO management appreciated the tireless efforts put in by MEAI and NCC in successfully holding the Annual Meet 2016 at Jaipur.

A group photograph of the CRIRSCO members and the National Core Committee was taken after the successful conclusion of the official business of CRIRSCO Annual Meeting 2016 in Mining Welfare Centre.

CRIRSCO Annual Meet 2016 - Presentations in Technical Sessions



Mr. Ian Goddard (CRIRSCO Chairperson)



Mr. Neil Wells (Deputy Chair CRIRSCO)



Dr. Harry Parker (Past Chair CRIRSCO)



Mr. Roger Dixon (Member UNFC committee)



Dr. Pratima Jauhari (ISA- Jamaica)



Mr. Pardeep Agarwal (DMG Rajasthan)



Dr. AK Chaturvedi (AMD)



Mr. BB Sharma (GSI)



Dr. TRP Singh (MoES)

CRIRSCO Annual Meet 2016 - Presentations in Technical Sessions



Dr Anjani kumar (MECL)



Mr. SK Sinha (NMDC)



Mr. Pukhraj Sethiya (PwC)



Dr PV Rao (Co-Chair NCC)



Dr Abani Samal (Co-Chair NCC)



Dr A Srikant (IIT Kharagpur)



Mr. Rajeeb Mohanty (Tata Steel)



Mr. KS Solanki (Vedanta-HZL)



Mr. Deepak Rathod (Trimex)

CRIRSCO Annual Meet 2016 - Presentations in Technical Sessions



Mr. Peter Stoker (Australia)



Dr Thomas Brenner (Brazil)



Ms Deborah McCombe (Canada)



Mr. Paul Banks (Canada)



Mr. Hans Gopfert (Chile)



Mr. Neil Wells (Europe)



Mr. Nikolai Yenshin (Kazakhstan)



Ms Oyungerel Bayanjargal (Mongolia)



Mr. Ian Goddard (on behalf of Russia)

CRIRSCO Annual Meet 2016 - Presentations in Technical Sessions



Mr. Ken Lomberg (South Africa)



Mr. Ian Douglas (USA)



Mr. T Victor (India-MEAI)



Mr. Wang Shao Bo (China)



Mr. Yoseph Swamidharma (Indonesia)



Mr. Jun Angeles (Philippines)



Mr. David Smith (DMT-UK)



Mr. Biplob Chatterjee (Geovale)



Mr. Shameek Chattopadhyay (SRK)

CRIRSCO Annual Meet 2016 - Valedictory Function



Mr. Anil Mathur presents bouquets to Chief Guest



Mr. S Roy Chaudhury, GH receiving bouquets



Mr. Arun Kothari welcoming delegates



Mr. Neil Wells welcoming delegates



Mr. Ken Lomberg, GH special address



Mr. Ankush Agrawal, Chief Guest addressing delegates



Mr. OP Gupta presenting memento to Chief Guest



Mr. OP Gupta presenting special gifts to spouses



Chief Guest presenting memento to Mr. Arun Kothari



Chief Guest presenting memento to Mr. PC Bakliwal



Mr Ian Goddard presenting memento to Mr. AK Kothari



Mr Ian Goddard presenting memento to Mr. PC Bakliwal

December 2016

स्टॉक एक्सचेंज में नहीं होती इनसे लिस्टिंग व निवेश

पुराने नियमों से भंडारों की जांच, अन्तरराष्ट्रीय स्तर पर नहीं मान्य

एक्ट में हो संशोधन तो मिले खान इंडस्ट्री को फायदा

स्यूटे/काजरीगढ़ी, जयपुर

भारत उन देशों में से एक देश है, जहां भूगर्भ में खनिज के अपार भंडार हैं। देश ही नहीं दुनिया के निवेशकों की भारत को भंडारों में खनन की वजह से, लेकिन किन्हीं सरकारी के पुराने एकर और नियम अन्तरराष्ट्रीय स्तर पर खान इंडस्ट्री को अपनी जगह खानों में रोड़ा बने हुए है। नियमों के चलते जिस तकनीक से खनन वर्क में उत्पाद की वैल्यू और क्वालिटी आंकी जाती है, उसे अन्तरराष्ट्रीय स्तर पर स्टॉक एक्सचेंज लिस्टिंग के लिए अधिकृत नहीं मानता है। ऐसे में स्टॉक लिस्टिंग के लिए इंडस्ट्रियल को मान्य किरस्को तकनीक से दोषाव वैल्यू व क्वालिटी की गणना करना पड़ती है।

रामस्वामि सहित देश में खान आक्ट के लिए एमएमटीआर एक्ट लागू हो चुका

है। इसके तहत खानों की ई-नीलामी अनिवार्य हो गई है। नीलामी से पूर्व मंत्र मिनरल्स और प्रोड्रस माइनर मिनरल्स के क्लॉक्स में व्यापक उत्पाद की क्वालिटी और क्वांटिटी का वेल्डूशन ग्राइडेट मैकन फैम बर्क क्लासिफिकेशन (पूणफर्की) विधि से कराता है। इस विधि को मिनरल्स कंसायेशन एंड डबलपेमेंट एक्ट (एमसीडीआर) में मान्यता दे रखी है। जबकि दुनिया में सभी अन्तरराष्ट्रीय स्टॉक एक्सचेंज में लिस्टिंग के लिए खान इंडस्ट्रियल को अन्तरराष्ट्रीय स्तर पर मान्य कम्पटी फॉर मिनरल्स रिजर्व इंटरनेशनल रिपोर्टिंग स्टैंडर्ड (सीआरआईआरएससीओएफ किरस्को) तकनीकी से दोषाव से इसके लिए वेल्डूशन करना पड़ता है।

एमआईआई केन्द्र से करेगा मांग

जयपुर में सोमवार से होते वाले किरस्को के वार्षिक सम्मेलन में भारतीय खनन अभिवृत्ता संघ (एमआईआई) इस तरह तकनीकी को वैश्विक मान्यता देने के लिए एक्ट में संशोधन की मांग कर सकता है। केन्द्रीय खनन सचिव वल्लिंदर कुमर इसके अग्र रहे हैं, जिसके सामने पुरानी तकनीक से अन्तरराष्ट्रीय स्तर पर निवेश क्लॉक की आ रही प्रोशनी और खान इंडस्ट्री को फायदा पहुंचाने के लिए इस किरस्को तकनीक को निवृत्ती में शामिल करने की अपील करेगा।

6 मिनरल्स का आइटम करने से पहले तय दरो का निर्धारण गुरुवारकी तकनीक से भारी का वेल्डूशन मैकन कर किया जाता है। अन्तरराष्ट्रीय स्तर की सभी स्टॉक एक्सचेंज इस तकनीकी को ग्राही रखती। ऐसे में खनन से जुड़े सुल्ल को अफी लिस्टिंग और निवेश के लिए किरस्को तकनीक से किर से भंडारी का वेल्डूशन करना पड़ता है। अगर किरस्को को एक्ट में शामिल कर दिया जाए, तो खान व्यवसायियों को काफी फायदा होगा।

- डॉ. पीवी राय, मिनरल्स इंडस्ट्री एडवाइजर

6 सई तकनीकी अन्तरराष्ट्रीय स्तर पर मान्य है, ऐसे में उसे वेल्डूशन बेहतर होगा। खान व्यवसायियों को फायदा होगा जो आसानी रहने।

- पीटी साकल्लिपाल, खनिज, एमआईआई रागराधन वेक्टर



चार दिन तक करेंगे प्राकृतिक भूगर्भ भंडारों पर मंथन

देश-दुनिया के खान इंजीनियर-विशेषज्ञ आज से जुटेंगे

किरस्को के वार्षिक सम्मेलन में भंडारों के मापदंड की तकनीकी पर रहेगा फोकस

स्यूटे/नवज्योति, जयपुर

भारत ही नहीं दुनिया के खान भंडारों की प्रचुरता रखने वाले कई देशों के खान इंजीनियर और विशेषज्ञ सामंवार से चार दिन के लिए जयपुर में जुटेंगे। वे यहां इस दौरान देश के भूगर्भ में दखे प्राकृतिक भंडारों पर गहन विचार मंथन होगा। वहीं भंडारों में व्यापक उत्पादों की मानने की तकनीकी विधिओं पर भी फोकस रखा जाएगा।

भारतीय खनन अभिवृत्ता संघ की ओर से अन्तरराष्ट्रीय स्तर की कम्पटी फॉर मिनरल्स रिजर्व इंटरनेशनल रिपोर्टिंग स्टैंडर्ड (सीआरआईआरएससीओएफ किरस्को) के वार्षिक सम्मेलन में यह विशेषज्ञ जुट रहे हैं। मानसरोवर स्थित माइनिंग वेलफेयर सेंटर में इसका आयोजन होगा। संघ के राजस्वधान वेक्टर के सचिव पीटी साकल्लिपाल, किरस्को के सभापति डीआन गाड्डाई व इसके प्रतिनिधित्व कर रहे एवामी समाल ने पत्रकारों से बातचीत करते हुए बताया कि किरस्को का वार्षिक सम्मेलन पहली बार भारत में आयोजित किया जा रहा है। किरस्को में दुनिया के वह दश शामिल हैं, जिसमें भूगर्भ में प्रचुर मात्रा में प्राकृतिक संयदा है। इन सभी देशों जिनमें आस्ट्रेलिया, कनाडा, ब्राजील,

यूरोप, कजाखस्तान, मंगोलिया, रूस, दक्षिण अफ्रीका और अमेरिका शामिल हैं। इसके अलावा चीन, फिलीपीन्स, इंडोनेशिया से पर्यवेक्षक भी आ रहे हैं। उन्होंने बताया कि भारत अभी इस संस्था का सदस्य नहीं है, लेकिन सम्मेलन में भारत के खान इंजीनियरों को इससे जोड़ने और किरस्को की खान उत्पादों की भूगर्भ में मात्रा मानने की तकनीकी को अपनाने की लेकर विचार मंथन होगा, इसके बाद भारत को भी किरस्को का अंग बनाया जा सकता है। उन्होंने बताया कि किरस्को की तकनीकी से जिस तरह से खनन उत्पादों का मापन किया जाता है, उस पर भी बैठक में गहन विचार मंथन होगा।

सामंवार को सम्मेलन का उद्घाटन मुख्य अतिथि के रूप में केन्द्र के खान सचिव वल्लिंदर कुमर, राजस्वधान की खान सचिव अर्पणा अरोड़ा, किरस्को के चयरपरसंग हवान गोड्डाई, जीएसआई के डायरेक्टर जनरल वम. राय, इंडियन यूरो ऑफ माइंस के कान्ट्रोलर जनरल आरके सिन्हा की मौजूदगी में होगा। दो दिन खुले सत्र होंगे और इसके बाद दो दिन किरस्को के प्रतिनिधियों और इंजीनियरों के आंतरिक सत्र होंगे।

[illegible][illegible]

सोमवार को सम्मेलन का उद्घाटन मुख्य अतिथि रूप में केन्द्र के खान रक्षिय बलविंदर कुमार, राजन को खान रक्षिय अर्पण अरोड़ा, क्रिकेट के शेयरपट्टे इवान योहान्स, नीलसार्को के इम्पेक्चर जनरल ए. राय, ईईएन व्यूरी और माईस के कन्ट्रोलर जनरल आर सिन्हा को मौजूदगी में होगा। दो दिन पहले सत्र होगा। इसको बाद दो दिन क्रिकेट के प्रतियोगिता और ई-गैमिंग के आंतरिक सत्र होंगे।

December 2016

MANAGEMENT AND UTILIZATION OF GROUNDWATER IN OPENCAST LIGNITE MINES, NEYVELI, CUDDALORE DISTRICT, TAMILNADU*

T. Kannadasan

Introduction

Neyveli Lignite Corporation Limited (NLC), a Navratna Government of India Enterprise, under the administrative control of Ministry of Coal, Govt. of India is involved in lignite mining in three opencast mines viz: Mine-I, Mine-1A & Mine II with total production capacity of 28.50 Million Tonnes Per Annum (MTPA) to meet the fuel requirement of four thermal power plants having total capacity of 2990 MW in Neyveli, Tamilnadu. In addition, NLC is also operating 2.1 MTPA capacity opencast lignite mine at Barsingsar, Rajasthan to meet the fuel requirement of 250 MW power plant.

In Neyveli area, all the lignite mines are located in the Neyveli hydro-geological basin covering an area of 3500sq km and comprises rock formation of Tertiary and Recent. Detailed Hydro-geological study has revealed the existence of three prominent multi-layered aquifers system viz: Un-Confined aquifer (water table aquifer), ii. Semi-Confined aquifer (above lignite seam) and iii. Confined aquifer (below lignite seam).

Mining of lignite from Neyveli mine is faced with hydrological problem due to aquifers existing below lignite seam and exerting an upward pressure, if not controlled, it could jeopardize mining operations. Therefore, the depressurization of this aquifer is essential during mining operation to maintain the pressure head constantly at the lignite bottom through pumping operations from strategically located pumping wells in the lignite mines/ close to excavation zone.

In addition to the above said groundwater problem in mines, the storm water (rain water) and seepage water are also causing problem during mining operation. All these ground water, seepage water and storm water are managed by judicial pumping to achieve the safe mining operation without exceeding the MoEF permissible limit of pumping i.e. around 149 MCM. At present, NLC is pumping around 129 MCM of groundwater against the MoEF prescribed limit.

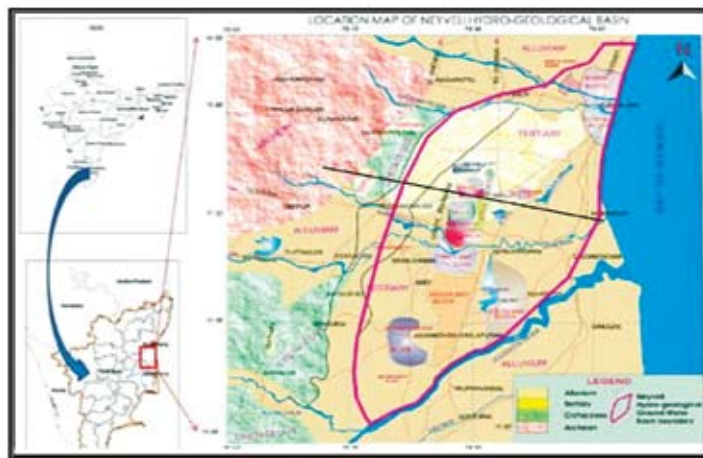
The entire amount of groundwater water pumped out from the mines is used by Thermal Power plants and the seepage water and storm water collected in the mine pits are used for domestic (after treatment) and supplied to surrounding villages for agricultural purpose.

Besides, NLC is also monitoring the regional ground water level and quality through net work of dug wells and tube wells to observe the impact if any due to pumping of ground water for safe mining. For sustainable management of ground water resource in this region, NLC is conferred with CBIP award -2016 by Central Board of Irrigation & Power.

Geology and Hydro-Geology of Neyveli Basin:

The geological formation exposed in the Neyveli Hydro-geological basin belongs to Tertiary and Recent periods. Recent formation comprises of Alluvium, Laterite, Kankar and Brown sands whereas the Tertiary formation formed of argillaceous sandstone, sandy clay, unconsolidated sandstone, lignite with interbanded clays/carbonaceous clays un-conformably overlying the Cretaceous sediments/formation. The Cretaceous formation includes shell limestone, siliceous limestone, marl etc. Archaean consisting mainly of intrusive Dolerite, Pegmatites, Quartzites and Granitoid gneisses form basement overlying by latter sediments including the lignite bearing Eocene formation. The general strike of rock formation is NE - SW with gentle dip towards SE,

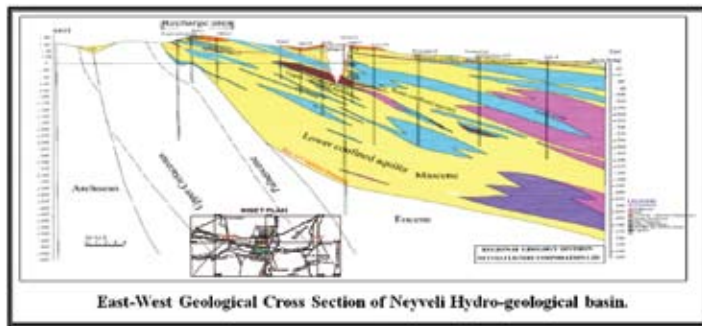
The Neyveli hydro-geological basin is bounded by Gadilam river in the north, Coleroon river in the south, Cretaceous-Tertiary rock contact zone in the west and Bay of Bengal coast in the east. It covers an area of 3500sq km. The hydrology of this area is extremely complex. The aquifer system in the lignite field comprise (a) Un-confined aquifer (water table aquifer), (b) Semi-confined aquifer (above lignite seam) and (c) confined aquifer (below lignite seam).



Chief General Manager/Geology-Mines & Coal Blocks
Neyveli Lignite Corporation Limited

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*Presented at Mine Water Management Workshop of MEAI at Bangaluru on 30-6-2016)



Un-confined aquifer occurs just below ground level up to a maximum depth of 50m comprising lateritic sand stones/ alluvium. Water level in this aquifer fluctuates between ground level and 15m depending upon the vagaries of the monsoon. Semi-Confined aquifer occurs just above lignite seam and its thickness varies between 5 and 10m. There is no considerable ground water pressure and the water from this aquifer is being tackled by constructing the pump wells in both semi-confined and confined aquifers as a combined well, in addition to the toe drains, provided for tackling the seepage of water from this aquifer.

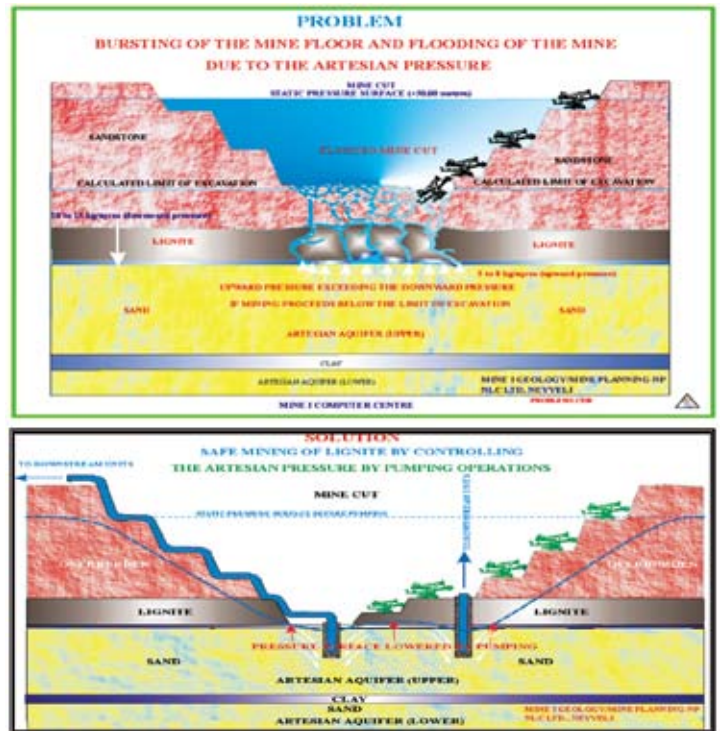
Confined aquifer is present just below lignite seam in the entire Neyveli region. The maximum thickness is around 400m in the core lignite region and pinches in the west. Within the lignite bearing area there is almost continuous thick barrier clay at a depth of around 40 to 50m which divides the aquifer into two parts viz. Upper and Lower confined aquifer in the lignite bearing area. The upper confined aquifer exerts an upward hydrostatic pressure of about 5 to 8 kg/sq.cm within the mining area. This aquifer is mainly recharged due to rainfall.

Hydro-geological problem in NLC mines:

Mining of lignite from the Neyveli lignite field is faced with a unique hydrological problem due to water in the artesian aquifers below the lignite seam exerting an upward pressure if not controlled, could jeopardize the mining operations. The hydrological investigations and a series of pumping tests conducted in this field proved that the practical-cum economic solution to depressurize the aquifer and maintaining the pressure head constantly could be done by large scale pumping operations from a series of pumping wells situated at hydrologically calculated distance from the lignite mining/ excavation zone.

The confined aquifer is the most important one as far as NLC mining is concerned. It has a maximum thickness of 400 metre in the central portion of the basin and pinches out in the west. It is intersected by lenses of clay of varying thickness. There is comparatively thick barrier clay at depth of around 40 to 50 metre below the top of aquifer, which divides the aquifer into upper and lower confined aquifers in the lignite bearing area. The upper aquifer with a high

confining pressure of 5 to 8 Kg./Cm². If the pressure is not controlled during lignite excavation, it will exert heavy pressure and create "heaving" and "bursting" of the mine floor and ultimately leading to flooding in mine. For safe excavation of lignite bed, the water pressure has to bring down to desired level.



Management of ground water in mines.

The groundwater, seepage water and storm water in the mines are managed through i. Groundwater control (GWC) operation, ii. Storm water control (SWC) operation and iii. Seepage water control operation.

Groundwater control (GWC) operations in mines:

The confined aquifer pressure surface is being controlled through pumping from large diameter wells (Drilling: 36 inches/Casing: 20inches) strategically located at pre-determined places and taken down to depths determined from hydrological tests. Huge submersible pumps initially of 175 HP and later up to 250 HP with heads of 150 m are now lowered and pumped at optimum discharge of around 1000 GPM & 500 GPM. Effective control of Ground water pressure is achieved by shifting the location of drilling/pumping wells at lignite bund closer to lignite excavation area and overcoming earlier problems of high groundwater pressure resulting in available lignite not been extracted fully.

Safe mining operations after lowering confined aquifer pressure to optimum level.

Storm water control (SWC) operation in mines:

The problems and difficulties arising from rain water,



Figure-5: Depressurisation Strategy adopted in the Neyveli Lignite Mines.



unconfined water and extraneous water are together dealt as "Storm Water Problem". Though not as severe or complicated as ground water problem, storm water is also capable of creating impediments to the smooth functioning of mining operations especially during the monsoon seasons. Sump dimension, catchment area, pondage area, quantum of precipitation is computed through a program by Geology & Planning division for each of the mine to plan the storm water control operation during monsoon season. The mine being an "Open pit" receives the entire rainfall and

this rain water together with the other types of water start accumulating in the mines and in no time the water swells up ultimately flooding the mine. It is estimated that just one week's normal rainfall in a monsoon season together with the normal inflow could flood the mines and paralyse the mining operations, if there is no storm water pumping. The impact of storm/seepage water on mining activities are as follows: a) Movement of the equipments, machineries and vehicle are hampered due to the slush formation. b) The walls of the benches become weak due to seepage and the soil flows along with the seepage water. c) Reduction in the productivity of overburden, due to wet grounds and difficulty in movement of mining machineries. d) Hampering the material flow in the conveyors. e) Instability in dumping yard owing to the slushy nature of overburden soil material.



Flow of rain/storm water through mine benches during rains on 25.11.2011



Rain water stagnated in mine sumps

Investigations and studies conducted showed that the best solution for controlling the storm water is to drain the entire water into compartmental sumps established at the lowest level in the mine floor and then resort to regulated pumping operations so as to maintain the water level within the sump.

For every four / five "Cuts" i.e. (4x40M/ 5x40M advancement of the mine), the sump also get shifted correspondingly. The entire rain water, seepage water and leakage water etc. from all over the mine are led to this sump through unlined toe-drains, buried cross drain-pipe, and channels on the spoil bank and mine floor. To lead the entire water entering the mines amounting to a flow of enormous quantity daily to multiple location (sump) is a formidable task and this is made possible only because of a very effective drainage system planned in each mine. The storage capacity of newly established sump is to handle the extraneous water from the

catchment area of the mine and inside mine spoil dumps and the other sources as described above.



New mine sumps are formed towards advancing side of mine:

In order eliminate the possibility of the storm water disposal pumps getting drowned, they are mounted on tank 10m long, 3m broad and 3.5 m high made of 8mm thick M.S. plates and weighing 13 tonnes. These tanks known as “pontoons”. Movement of pontoons from one sump to another is accomplished by flooding of the sumps and guiding the movement of the floating pontoons towards the new sump.



Floating pontoon pumps

Each pontoon is fitted with two centrifugal pumps of 650 KW having designed pumping capacities varying from 4000 – 5000 GPM for a 140 metre head is obtained similar to the groundwater control pumps.

The present the rate of Storm water pumpage/pontoon pumpage is in the order of 40,000 to 60,000 gallon per minute. The water finally reaches to the surface being almost pure water without contamination which is allowed to flow through old drainage course/mine garland canal.

Depending upon the rate and magnitude of inflow of water to the sump, pumping from the pontoons is regulated. Normally during monsoon months, water is pumped out continuously to cope up with the inflow due to leakage, seepage, by pass pumping and also groundwater (artesian water) due



Discharge of storm water to the garland canal

to inadequate pressure relief at certain localized zones. But during monsoon months (i.e.) October to December, the pumpage will have to be stepped up. Sump level is monitored for observing the fluctuation of the water levels in the sumps. During 2015 monsoon period, 12 sumps were operated with installed capacity of 52 pumps / 2,16,000 Gallon per minute. The sump water levels and discharges from the pontoons were noted in every shift and recorded in the shift registers.

Seepage water control operation in Mines:

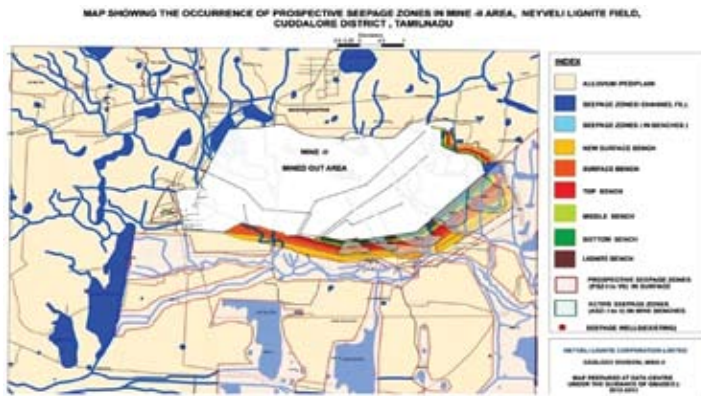
The seepage water from unconfined aquifer zones are controlled by pumping through seepage wells established very closer to the seepage zones. Acute seepage problem in the Surface, Top, Middle and Bottom benches in mine were prevailing since 2002 owing to the presence of marshy/ wet land in the forward areas and also due to influence of Paravananar River flowing in the earlier part of the mining area, shifted to advance area to handle the extraneous water of mine.



Seepage water in overburden benches in mines.

In order to identify the prospective seepage zones in Mine-II area, NLC has carried out integrated study through remote sensing and GIS techniques and proposed a prospective zones seepage map. The existing surface tanks, water canals and their old courses were demarcated and compared with

the existing mine seepage zones. It was found that in the vicinity of paleo-channels, the seepage problem was acute. Based on the integrated study, active seepage zones in the mine benches and prospective seepage zones in the future mining area were demarcated to take up suitable control measures.



Based on the above study, Cluster type seepage wells drilling was introduced with pumping in two rows (110 wells) by different capacity pumps (50, 100 & 200 GPM) which brought significant improvement in controlling seepage in the overburden benches. Seepage problem in overburden benches are managed mainly through pumping through seepage wells developed in selected localities and also through Toe/Cross drain. Wells of 24 inches diameter and 12 inches diameter of casing pipe are lowered keeping 50 to 80 metre interval between wells and 200 metre interval between rows.



SEEPAGE WELL ROW AT ADVANCING SIDE OF NSI GROUND LEVEL TO CONTROL SEEPAGE



Seepage well row at Mine bench level to control seepage

Studies are also undertaken to identify high, medium & low seepage intensity zone, water level variation etc through pumping tests for installing suitable capacity pumps. In addition, all the discharge water is taken farther & let into



Seepage water is coursed to mine sumps through toe/cross drains

main canal. This will further minimize the seepage problem in the OB benches.



The storm/seepage water from mines is taken to farther distance and let into main canal.



BWE working at Top bench shifting side. No seepage found in both floor & bench wall



Utilization of mine water:

The total power production capacity of NLC in Neyveli is 2990 MW at present, which requires huge quantity of water for feed water in boilers and for cooling water system. NLC is pumping about 279560 Kiloliters per day of ground water from its mines for safe mining operations, which is entirely consumed for Thermal Power Stations requirements. Since the Neyveli Township has population of more than 1.5 Lakhs sufficient quantity of water need to be provided for residents. The drinking water requirement of 44500 Kiloliters / day in Neyveli Township is met from treated storm water from

MINERAL EXPLORATION AND ORE BODY MODELLING

Regional groundwater management in Neyveli Hydro-geological basin:

Prof. Bhabesh C Sarkar, Convenor, Brain Storming Workshop on 'Mineral Exploration and Ore Body Modelling (MEOBM)' under the aegis of 1st Triennial Congress of Federation of Indian Geosciences Association (FIGA) on 9th November 2016 at the Golden Jubilee Lecture Theatre, IIT (ISM) Dhanbad along with the dignitaries (from left: Prof. Bimalendu B Bhattacharya, FNAE, Leader of Fourth Antarctica Expedition & Former Director, Indian School of Mines, Dhanbad and currently, Distinguished Professor, S.N. Bose National Centre of Basic Sciences, Kolkata; Dr. Shalesh Nayak, Former Secretary to the Govt. of India, Ministry of Earth Sciences (MoES), New Delhi and currently, Distinguished Scientist, MoES New Delhi, President, Federation of Indian Geosciences Association (FIGA); Prof Bhabesh C Sarkar, Professor, IIT (ISM) Dhanbad & Convenor of the Brain Storming Workshop on 'Mineral Exploration and Ore Body Modelling (MEOBM)' and National Council Member, MEAI; Prof. O. P. Varma, Former Head, Dept. of Applied Geology, ISM Dhanbad and currently, Executive President, Indian Geological Congress; Prof. Basnt K Sahu, Life Time Emeritus Professor, Indian Institute of Technology, Bombay.

Thus NLC is effectively managing the ground water, seepage water and storm water accumulated in the opencast lignite mines and utilizing the same for the pit head thermal power plants, township water supply and irrigation purposes for the surrounding villages.

MEAI NEWS

MEAI, HEAD QUARTERS:

Mining Engineers' Association of India has observed and celebrated IMD 2016 on 1st Nov. 2016 in 3 sessions.

1st Session: At 10:00 A.M –

- i) IMD Pledge was taken by all the members present
- ii) Elocution competition on the theme **“Responsible Mining – Our Commitment to Nation”**. The elocution competition was conducted at 10:30 A.M among Mining Engineering Students, Mining Engineers and Academicians. All together 12 members comprising Students and MEAI members attended the Elocution competition.

S/Sri Ashok Kumar Gupta, Jt-sec-cum-treasurer and R.Veeranarayana, Sr. MEAI member acted as judges to the elocution competition.

After elocution competition all the students and other participants were provided buffet lunch and requested to stay back to attend the Technical paper meeting at 03:30 P.M.

2nd Session: Technical paper meeting at 03:30 P.M:

A Technical paper meeting on the topic "Conservation of Lime stone Resources by utilizing industrial waste for Manufacturing of Cement" by Dr.L.H.Rao, Addl. Director, (Rtd.) NCCBM was held.

3rd Session: Indian Mining Day 2016 – Concluding function at 04:45 P.M:

S/Sri M. Fasihuddin & T.V.Chowdary, Past Presidents, MEAI attended as Guests of Honour and addressed the gathering. Prizes to the winners of the elocution competition were distributed by the Guests of Honour and Senior members Dr.Hari Sarvothaman, Sri K.Umamheswara Rao, Sri Chandramohan. The following are the winners in the elocution competition:

Students:

First Prize: Sri Raj Bharath Nayak, Final Year, B.Tech (Mining Engineering) Anasuya Devi Inst. of Engg. and Technology

Second Prize: Sri D Uday Kumar, 2nd year, Dip. In Mining Engineering, AVCR College

Third Prize: Sri K.Satyanarayana, 2nd year, Dip. In Mining Engineering, AVCR College

Consolation Prize: Sri M. Vamshi, 2nd year, Dip. In Mining Engineering, AVCR College

Members & Mining Engineers:

First prize: Sri K.Srinivasa Rao, Mining Engineer

Second Prize: Sri Ameerrul Huda, Mining Engineer

Special Prize: Dr.L.Ramakrishna, Mining Engineer

Vote of thanks: Sri Koneru V.Rao, Secretary General conveyed his sincere thanks to Sri M.Fasihuddin and Sri T.V.Chowdary for attending technical paper meeting and for addressing the members during the concluding function. He specially thanked Dr.L.H.Rao for presenting a technical paper on the "Conservation of Lime stone Resources.

He also thanked S/Sri A.K.Gupta, R.Veeranarayana to act as judges in the elocution competition and conveyed his sincere thanks to Dr.K.V.Narappa, Sri K.Peter, Sri M.Bhaskar Rao for their help in conducting the IMD 2016 celebrations since morning. Finally thanked students from Mining Engineering & Earths Sciences of various colleges, members and council members for actively participating in the elocution competition, technical paper meeting & concluding function. (Photographs are given at pg. No .35)

MEAI, BARAJAMDA CHAPTER:

IMD 2016 celebrations at GM Office, Noamundi on 01.11.2016

The Chairman MEAI-Barajamda Chapter, Mr. Pankaj Kumar Satija, GM-OMQ Tata Steel Ltd inaugurated the program by Flag hoisting at GM Office, Noamundi. The meeting started with pledge & organizing awareness programmes highlighting the importance of Mining & Mineral Industry and its role in the economic development of the country. Mr. Satija briefed about the commitment & importance of the day. He explained that the mining contributes a major share in the growth of gross domestic product and nation will be benefited from this sustainable Mining Industries. Sustainable mining is the core of future prospect for nation's growth.

Tata Steel is committed to integrate sustainability considerations into all business decisions and key work processes, with the aim of creating value, mitigating future risks and maximizing opportunities. MEAI members along with the executives from senior management of OMQ Division & Union Officials were present during this occasion. Chairman stressed on the commitment of Mining industries for sustainable Mining to improve the quality of life, education, protection of environment and increase contribution to the GDP' by the Mining Sector to the Nation.

Celebration of Indian Mining Day 2016 and flag hoisting observed at other location.

1) Flag hoisted by Chief Noamundi, Shri R P Mali along with other MEAI members and employees at Noamundi Iron Ore Mine. Shri Mali told about the importance of the Mining Day and requested each one to observe each day as Mining Day. He explained how Mining is adding value

to the Nation as responsible & sustainable methods. Senior mine officials also attended the meeting and expressed their views. The importance of celebrating the mining day was also put forwarded, 2) Flag hoisted by MEAI Executive member along with employees & union officials at Joda Iron Mines. Mr. Rajesh Kumar, MEAI- member explained about the celebration of Mining Day and importance of sustainable mining on local community & countries economy. Shri Kumar focussed on social equality through sustenance of mining activities in Joda – Barbil area. He also focussed on the digital initiative in mining sector and how we can contribute innovative ideas of scientific and technological developments in the mining industry for the benefit of its profession and the country & 3) The event was organised at various other mines and was attended by the senior mine officials, employees & union official. The gathering was addressed by the senior & union officials and they took pledge on the auspicious occasion of Indian mining day. (Photographs are given at pg. No. ??)

MEAI, BANGALORE CHAPTER:

IMD 2016 celebrations on 01.11.2016

MEAI: Bangalore Chapter celebrated the Indian Mining Day on 1.11.2016 at the Library Hall of the Geological Society of India. Considering that it was a State Government holiday the attendance of 30 members was impressive. Mr.R.H.Sawkar, Chairman, BC presided over the meeting. He gave a brief history of IMD and highlighted the importance of the theme of the current year, RESPONSIBLE MINING – OUR COMMITMENT TO NATION. Mr.Sawkar narrated the way the mineral industry developed in the erstwhile Mysore State under the able leadership of geological stalwarts Prof.C.S.Pichamuthu, Mr.B.Rama Rau, Mr.Sampath Iyengar and Dr.B.P.Radhakrishna, who worked with absolute authority and great foresight in mineral exploration and opening up of mines. He recalled the work done in Kudremukh by Mr.Sampath Iyengar and how Kudremukh Iron Ore Company Limited flourished for many years until its sad closure.

Mr. Sawkar also administered the 'Pledge' to all members.

On this occasion, two veteran mining engineers, Mr. M.H.R.Rao, Technical Director (Retd), BGML, Kolar Gold Fields and Mr. D. V. Pichamuthu, former Managing Director, Almara Magnesite & Former President, FIMI were honored for their yeoman service to the mining industry. Mr.L.M.Niranjana Murthy, read the citation on Mr.M.H.R.Rao, and Mr.K.R. Krishnamurthy, Secretary, MEAI: BC, on Mr.D.V.Pichamuthu. Gold medals were presented to the two guests of honor. The two were presented with gold medals recently by Mining, Metallurgical and Geological Institute of India, Kolkata, in recognition of their contributions in the Mining Sector.

Mr.Rao recalled the glorious days of working the gold mines of Kolar Gold Fields. The speech was studded with historical

facts and the narration was vivid. He lamented the premature decision to close the mines at a time when gold reserves were still available.

Mr.Pichamuthu spoke about the way Tatas explored various areas in the country for minerals and later commenced exploitation. Mineral exploration being a very risky business, he said the States should not be spending tax payers' money on these ventures and that junior level exploration companies should be encouraged to take up exploration for various minerals. He underscored the unfavorable conditions that now prevail in the country with enactment of new legislation which has put investors on backtrack.

All the three speakers emphasized on the need to change the style of mineral governance in Karnataka and establish amicable base to encourage investors in the mining sector. The need of the hour is also to ensure that the industry adopts the new mining legislation and works within its framework.

Mr.H.S.Murthy, Member, Executive Committee of BC proposed a vote of thanks, and distributed Car Stickers to the participants to propagate the Indian Mining Day. - Report by K.R.Krishnamurthy and C.V.Seshadri



Mr.R.H.Sawkar, addressing the participants



Mr.D.V.Pichamuthu addressing the participants



IMD participants group photo



Mr.M.H.R.Rao being honored by Mr.L.M.Niranjana Murthy and Mr.H.S.Murthy

MEAI- BELLARY - HOSPET CHAPTER:

IMD 2016 celebrations on 01.11.2016 at T.M.A.E.S. Polytechnic College

MEAI, Bellary – Hospet chapter has observed and celebrated Indian Mining Day 2016 in the T.M.A.E.S. Polytechnic College, Hospet. Sri T.L.Yogananda, Vice-Chairman, MEAI, B-H Chapter & HOD-Depts. of Mining & Metallurgy, T.M.A.E.S. Polytechnic College, Hospet has organized the event. The

chapter organized Elocution competition among the students of Mining & Metallurgical. The IMD 2016 celebrations commenced at 10: 00 A.M on 1st November 2016 at LH 14, T.M.A.E.S. Polytechnic College. Sri B.P.Pandey, Vice President (Mines) JSW Steels Ltd., Tornagal, Dr.Meda Venkataiah, Past President, MEAI, Sri K.Madhusudhana, Vice President-III, MEAI & Sri P.Sreenivasa Rao, Secretary, MEAI, B-H Chapter & GM, BKG were the Chief Guests. Sri T.M.Vijaya Kumar, Principal, Hosapete has presided over the function. The function started with prayer by Kumari Varshini.H , III SEM METALLURGY, Sri.T.L.Yogananda welcomed the gathering. Mementos were distributed to the elocution competition winners as per the list given below: 1) Abhishekha, Mining, 2) Rajesh, Metallurgy, 3) Preyatham, Metallurgy, 4) Venkatesh, Mining, 5) Manjunatha Patel, Mining, 6) Venkatesh.M, Metallurgy. Mr.Virupaksh Gouda, Metallurgy student anchored the programme. Mr. M. Venkatesh, Metallurgy student extended vote of thanks. (Photographs are given at pg. No. ??)

IMD 2016 celebrations by Society of Geoscientists and Allied Technologists (SGAT) , in SGAT Building, Bhubaneswar on 1.11.16

Society of Geoscientists and Allied Technologists (SGAT) observed the Indian Mining Day 2016 on 1st November 2016 at the SGAT Conference Hall, Bhubaneswar. General Secretary, SGAT summed up on the significance of the day. On the occasion, Sri G S Khuntia, Former Executive Director (Operations), SAIL and Member, Board of Directors, OMC and National Mineral Award winner (Mining Technology) delivered a talk on “SUSTAINABLE MINING AND CURRENT STATUS OF IRON ORE MINING & FUTURE ROAD MAP OF IRON ORE MINING INDUSTRY IN INDIA” at 6 pm on 1st November 2016 at SGAT Conference Hall. Members of SGAT and other invited Guests attended the function and interacted with the presenter Sri Khuntia.



MEAI RAJASTHAN CHAPTER- JAIPUR:

Indian Mining Day was celebrated with usual festivities and fervour at Mining Welfare Centre.

The Indian Mining Day flag was hoisted by senior member of the Chapter Shri VCS Shreemal, flanked by chapter chairman Shri O P Gupta and chapter secretary Shri P C Bakliwal. It was followed by National Anthem, sung by all present.

All the members than followed Shri Bakliwal to take the pledge.

Secretary informed the members about upcoming activities of the chapter, including CRIRSCO Annual Meet and Workshop during 7-10 November 2016 and International conference during 20-22 January 2017. He desired that all the members should put in their best efforts to make 2017 international conference a grand success. Members' good offices could be utilised in getting contribution of good papers, sponsors and exhibitors. He extended his request to all the MEAI members as well, in supporting the 3rd International Conference on Advanced Technology in Exploration and Exploitation of Minerals. The celebration was followed by distribution of sweets to all present.



IMD Flag Hoisted Rajasthan Chapter Jaipur

Members taking IMD Pledge Rajasthan Chapter Jaipur

MEAI RAJASTHAN CHAPTER-JODHPUR:

IMD 2016 celebrations on 01.11.2016

Rajasthan Chapter-Jodhpur celebrated Indian Mining Day on 1st November 2016 in afternoon session at conference Hall of RSMML, Jodhpur. This year's theme “**Responsible Mining – Our Commitment to Nation**”. – emphasizes the role of mining engineers & earth-scientist by their involvement in building & strengthening the nations & to create awareness among the citizens of our great Country & to explain, propagate and create good understanding about necessity of mining of mother earth for the very existence of the mankind.

The event started with welcome by Chapter Chairman Prof (Dr) Sushil Bhandari to the guest & participants for celebrating IMD. He conveyed that the Mining Engineers, Earth Scientists, and Mining Organizations should take lead

in this endeavor. Chairman announced an Essay competition for the students of Bachelor in Mining Engineering on the theme **"Digitization in Mining"**. The prize money is also announced of Rs 2000/- & 1000/- for first two students. Participants of 7 selected essays would make a presentation in a student meet to be organized in December. The winning Essay will also be published in souvenir to be released during National Conference on 'Health, Safety & Environment Issues in Mining' being held at MBM Engineering College, Jodhpur on 19th Dec.'16. Around 70 students are expected from MBM Engineering College & Raj Engineering College to submit their ideas by 25th Nov. & the same shall be evaluated by Prof NK Khandelwal & Prof Sunil Parihar.

The chief Guest of the program was Prof Virendra Singh, an Alumni of MBM Engineering College of 1964 batch & former Dean of Engineering Faculty, Osmania University (AP). The dais was shared by Dr. PC Purohit - National Council Members & Prof (Dr) N K Khandelwal, Sh PR Dave and Sh AK Jaiswal- Secretary, Jodhpur Chapter. The other prominent mining engineers & geologist S/Sh YS Sankhla, VK Bohra , Kishore Vyas, RS Rathore, DK Arora & many other MEAI members from RSMML, FAGMIL, DMG-Rajasthan, MBM Engineering College, Raj Engineering College were also present.

The program began with the hoisting of the IMD-flag by the Chief Guest, followed by Pledge taken by all MEAI members and attendees who were present at the function of the IMD. A tricolor National Flag was placed on the Table while taking the Pledge.

In the inaugural speech, chief guest thrust over the systematic development of mineral resources & optimum utilization with proper Mining with minimum damaging to the earth & the environment. He conveyed that thrust may be given on use of digitization advanced technology available with us by proper planning, systematic & scientific mining & developing esthetic environment around mine area by systematic action plan of environment management & using local flora in plantation activities.

Dr PC Purohit, the National Council Member & Advisor (Mining), RSMML stressed about the vital issue in mining



Pledge taking by all MEAI members on IMD-2016 Celebration

industry i.e. occupational Health & Mine Safety. He opined that Health and safety of the employees is an important aspect of an industry's smooth and successful functioning.

Vote of thanks was given by chapter secretary Sh A K Jaiswal & special thanks to RSMML for providing space for organizing the IMD celebration on the day.

MEAI RAJASTHAN CHAPTER-UDAIPUR:

Indian Mining Day was celebrated on 1 November, 2016 in association with Institution of Engineers (India), Udaipur Local Chapter, in the Institution of Engineers Hall. In this celebration 40 Mining Engineers and other dignitaries participated.



Shri Ashok Kumar Porwal, Director of Mines Safety Udaipur was Chief Guest and Shri Pushpendra Gaur, Dy. Controller of Mines IBM was Keynote speaker. The Apart from various dignitaries Shri H.V. Paliwal, Ex- Director (Mining), Hindustan Zinc Ltd. and Dr. K.N. Nag, Ex-Vice Chancellor, Rajasthan Agriculture University Bikaner were also present.

Dr. S.S. Rathore, Chairman MEAI, Rajasthan Chapter, Udaipur and Shri N.K. Mathur, Chairman Institution of Engineers (India) Udaipur welcome the guest. Member of MEAI & IEI for their graceful presence.

All the delegates took oath to do systematic, scientific mining with all environment friendly techniques and conservation of minerals. The oath ceremony was conducted by Shri R.P. Gupta, Ex-National President, MEAI and Patron of MEAI Udaipur.

Shri Pushpendra Gaur, the Keynote Speaker gave a very thought provoking lecture on this year theme 'Responsible Mining-Our Commitment to Nation'. He said in the lecture that the various Rules, Regulations has been framed for safe efficient mining, and it is duty of every individual to follow these rules so proper mining can be done and conservation

of mineral can take place for the benefit of the nation. He also informed that the Indian Bureau of Mines has prepared a software in collaboration with BISG Ahmadabad with can detect the illegal mining.

Shri Ashok Kumar Porwal, Director Mines Safety, Gol and Chief Guest said in address that there are no. of small mines measuring 100 x 100 mts., when statutory boundary is left, only 72% area remain for working. Thus lot of mineral is blocked. This problem can be overcome when the mine owners formed a single mine in a cluster like situation, Thus lot of mineral can be won and mine supervision can be made easy. Shri N.C. Bansal also gave his valuable suggestion in the meeting.

The program was conducted by Shri Anurudh Prashant, Honorary Secretary Intuition of Engineers (India) Udaipur, Shri R.D. Saxena Secretary MEAI Rajasthan Chapter Udaipur extended vote of thanks to the guests, members of MEAI & IEI for sparing their valuable time for organizing the program, of Mining Day Celebration.

MEAI, TAMIL NADU CHAPTER:

IMD 2016 celebrations at Dept. of Mining Engg., Anna University, Chennai on 01.11.2016

The programme was organised by Society of Mining Engineers (SME), a student organization belonging to Department of Mining Engineering, Anna University, Chennai.

Prof. K.V. Shanker has welcomed the guests and participants of the Indian Mining Day-2016 celebrations. The significance and need for the Mining Day Celebrations were highlighted by Prof. K. Srinivas, Immediate Past Chairman, MEAI - TN Chapter and Head, Department of Mining Engineering during his Presidential speech. In this function, Shri. G. Vageesan, formerly Executive Director, Hutti Gold Mines Limited, Shri. D. Srihari, formerly General Manager (Mines), Sri Vishnu Cements Limited and Shri. M. Palanikumaresan, Joint General Manager (Mines) were the Guests of Honour. Due to preoccupation, the Chief Guest of the function - Shri. Shyam Mishra, Director of Mines Safety (i/c), Chennai Region was unable to participate. The function was attended by the academicians, mining engineers, quarry owners and students include Shri. N. Sanakarasubbu - Mining Consultant, Shri. M.D Suresh Kumar, General Manager-CATERPILLAR, Shri. Jagadeesh, Quarry owner and the students of the Department of Mining Engineering, Anna University, Chennai. About 120 persons have participated in the aforesaid event.

During the speech, the guests have emphasized the measures to minimize the environmental degradation due to mining and the role of young Mining Engineers in the Mining Industry in near future to carry out 'Responsible Mining' by



adopting the state-of the-art technology available and also by understanding the existing legal procedures of the mining which will help in ensuring the 'Sustainable Development' which is their social responsibility. They have also requested the young mining engineer to prepare themselves to work in any situation and also to maintain the work-ethics when they join the mining industry. All the special invitees are honoured with shawl. In the end, Mr. P.M. Sanjay, President, Society of Mining Engineers (SME), has proposed the vote of thanks.

MEAI- TAMILNADU CHAPTER:

Indian Mining Day celebrations was organised & celebrated in a befitting way with more representation of mine workers from more than 8 cement plants in the Ariyalur District, Tamil Nadu State at Abinandan Hall, Ultratech Cement, Ariyalur on 1st November 2016 with the theme "Responsible Mining- Our Commitment to Nation".

The one day celebration was divided in to 2 sessions viz. morning session & afternoon session. The morning session was dedicated to mine workers by conducting competitions and honouring of Chief Guest, Guest of honour and senior MEAI members for their continuous support and achievements. In the afternoon session, 4 paper presentations were held by renowned & distinguished authors.

Competitions for Miners and celebration meeting:

On the eve of "Indian Mining Day" various competitions were conducted for mine workers such as Poster, Slogan and Quiz. The participants were from 8 Cement industries operating

their mines in and around Ariyalur District. A selection team headed by Mr.K.K.Biran, Special Invitee & Former- National President, MEAI was framed to select the winners. All the competition was started at 8.00 am and completed by 10.30 am. More than, 100 persons were participated in the various competitions.

Mr.M.James, Chairman, TN-Chapter & Mine owner has welcomed the gathering and participants of the Indian Mining Day-2016 celebrations. The significance and need for the Mining Day Celebrations were highlighted by Mr.G.Raghunath Singh, Secretary, MEAI-TN Chapter and Vice President, Mines during his secretarial speech.

Felicitations and Honouring:

Prof.Dr.Gurdeep Singh, Vice Chancellor, Vinoba Bhave University, Hazaribagh, Jharkhand State was the chief Guest of the function and Dr.S.Subramaniam, Former-Member EAC (Mining), MoEF & CC, New Delhi and member National Biodiversity Board was the Guest of Honour

The following senior persons were graced the meeting

Sri.K.Gowrappan, Former-Member EAC (Mining), MoEF & CC, New Delhi Special Invitee Sri.K.K.Biran, Special Invitee & Former- National President, MEAI. Sri.S.Kumarasamy, Special Invitee & National Council Member was present. Also, a major felicitation event was held at the end of morning session and the senior persons were honoured with shield and Shawl.

Paper Session:

The technical papers were presented by distinguished authors on the following topics:

- 1) Indian Mining Industry today "Challenges and the Road Map for the future" by Prof.Dr.Gurdeep Singh, Vice Chancellor, Vinoba Bhave University.
- 2) Hydraulic fracturing technique for ground water augmentation in hardrock terrain- by Prof.Dr.Senthilkumar, Annamalai University,
- 3) Perspective of Mining industry in Ariyalur and Perambalur district by Dr.S.Subramaniam, member National Biodiversity Board & 4) Changes in Mine Legislation and its impacts on Mineral concession system by Sri.S.Kumarasamy, National Council member. (Photographs are given at pg. No. ??)

MEAI- SINGARENI CHAPTER:

Indian Mining Day 2016 celebrations was organised & celebrated in all the 11 areas of Singareni Collieries Company Limited on 01.11.2016 in a grand manner by Singareni chapter. Wide publicity was given through papers, banners, posters and news papers about the importance of Mining and its positive impact on the society. Lectures were conducted. Elocution and Essay writing Competitions

were conducted to College and School Children all over the Singareni on the theme "Responsible Mining – Our Commitment to Nation."

Indian Mining Day was observed in six districts i.e., Adilabad, Karimnagar, Warangal, Jayashankar, Khammam and Badradri. About 40 Colleges and 60 Schools were covered. About 60,000 (workmen + officers) Employees all over the Singareni have taken Mining pledge.

A workshop was conducted at Yellandu club, Ramagundam (Karimnagar District) covering RG-I, RG-II, RG-III and Adriyala project areas on the theme, "Responsible Mining – Our Commitment to Nation." about 150 officers have participated in the same including the following Chief General Managers:

S/Sri Ch.Venkateshwar Rao, V.Vijayapal Reddy, Sri M.S.Venkata Ramana, K.Chandra Shekar, P.Ravi sudhakar Rao, T.Nirishan Raju.

Seminar was conducted at SRP(Adilabad District) on 01.11.2016 evening at CCOA club covering SRP, MM and BPA areas on the theme "Responsible Mining – Our Commitment to Nation" followed by dinner. The following General Managers have participated along with 169 officers. Prof A.P.Natarajan, Director, Victoria Institute of Leadership & Training was the Chief Guest.

S/Sri Md.Subhani, M.Raghavulu, K.Ravishankar, CH.Jayaramakrishna, K.Kondaiah.

A Knowledge day session was conducted at SC Women's PG & Degree College, covering Corporate, Rudrampur, Manuguru and Yellandu areas, Kothagudem (Badradi District). Sri A.P Durai, Rtd Director General of Police was invited as the Chief Guest. 209 Officers including the following Directors and General Managers have attended the program:

S/Sri B.Ramesh Kumar, D(OP) & Chairman, MEAI SCCL Chapter, A.Manohar Rao, D(P&P) & Vice Chairman, MEAI SCCL Chapter, B.Bhaskar Rao, K.Laxminarayana, Secretary, MEAI SCCL Chapter, Ch.Ramalingeshwarudu, T.Basavaiah, Dr.Prasanna Sinha, S/Sri K.Naga Bhusan Reddy, S.Sambasiva Rao, W.Vijaya Babu, P.Bannaiah Babu, L.Vasanth Kumar, P.Rambadri Raju & B.Shankar.

Elocution Competition Winners:

I) University College of Engineering, Total 38 students Participated.

1st Prize, B.Ramesh - IV/IV, 2nd Prize, K.Shyamsunder - III/ IV & 3rd Prize, Md.Mujahid- IV/IV, II) SC Women's PG & Degree College, Total 47 Students participated winners:1st

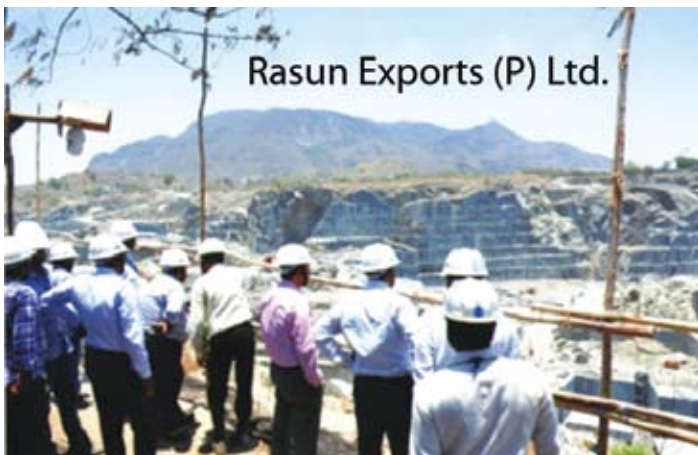
Prize, K.Ravi Kumari - B.Com II year, 2nd Prize, C.Laxmi Vasuki -B.Com I year & 3rd Prize A.Manasa - BA III year

Essay Writing Competition Winners:

III) Triveni High School, Total 88 Students participated: 1st Prize, S.Swathi -10th Class, 2nd Prize, T.Nagendra- 7th Class & 3rd Prize, G.Phani- 9th Class, IV) Krishnaveni School, Total 65 Students Participated Winners: 1st Prize, A.Kiran - 9th Class, 2nd Prize, E.Bhanu Priya-10th Class & 3rd Prize, H.Supriya - 8th Class, V) St.Mary School, Total 52 Students participated winners: 1st Prize, D.Mohan-10th Class, 2nd Prize, S. Stephen- 7th Class & 3rd Prize, F.Mary - 8th Class. (Photographs are given at pg. No. ??)

IMD 2016 celebrations by Rasun Exports Private Limited, Miners and Exporters, Chimakurthy, Prakasham District, A.P on 01.11.2016

Sri C.H.Sarat Chandra Babu, General Manager, RASUN Exports Private Limited informed that their Organization has observed and celebrated the Indian Mining day on 1st November 2016 with all their employees. On this occasion Sri C.H. Babu about the history of Granite Mines (Dimension Stone) in the State. Mr. G.Vikram Simha, training mining graduate gave briefly geology of the granite and its geneses. In the meeting it was decided by all the members that the Indian Mining activity shall be carried out as per the statutory covering Act Rules and Regulations. The Mining activity shall be carried out as per approved mining plan by avoiding generation of waste minerals and conserving the minerals for futures generation.



MEAI MEMBER ACHIEVEMENT:

Sri Jangam Srinivasulu (LM.No:4842/Hyd) has been conferred "The Best Citizens of India Award 2016", by the International Publishing House, New Delhi , the World's most leading biographical specialists, in recognition of his outstanding performance and contribution in his chosen career of Mining Engineering. He is a seasoned professional in Hard rock mining with experience of more than 48 years including practical experience in Mica, Coal mines.

On social front, he has been associated with various voluntary organizations, performing different roles in cultural, sports, religious and entertainment spheres, he retired as a Senior Manager (Mining) at Hutti Gold Mines. He won several organizational level tournaments as a bridge player. He has participated in sports quiz program in Delhi Doordarshan and organized cricket tournament in the memory of his father Lt. Jangam Subbaiah Naidu at Hutti Gold Mines.



MEAI congratulate him for this achievement.

Sri Lal Ravi Kumar (LM.No: 3643/Hyd) has been conferred GLORY OF INDIA AWARD in recognition of Flattering Merit Excellent, Performance and Outstanding Contribution for the progress of the Nation and World on 4th October 2016 at Bangkok, Thailand during FRIENDSHIP BANQUET.



H.E. Korn Dabbaransi, Former Deputy Prime Minister of Thailand presented this award. Cllr Manju Shahul-Hameed, Mayor of Croydon (UK) also present at the award ceremony.

MEAI congratulate him for this achievement.

MEAI – GOA CHAPTER:

MEAI Goa Chapter celebrated the Indian Mining Day on 1st November 2016 at three places i.e., Goa Group Vocational Centre, Goa Engineering College, Farmagudi & Government Polytechnic Bicholim.

i) The Executive committee met at Goa Group Vocational Centre. There was a formal function where Shri. C S Dhavaji, MEAI National Council was the chief guest. The others on

dais were Mr. CGS Bhaskara Varma, Chairman, Goa chapter, Mr. M. Prakash Ex- Vice chairman, Goa chapter, Dr. G Adhikari, Professor, Goa Engineering College & Mr. Vaidya senior MEAI member.

The pledge was taken by all the members present. Shri. C S Dhaveji highlighted the need of all stakeholders coming together towards responsible mining. Mr. M Prakash mentioned about the threats to mining operations that are going to come up in near future & preparations of the companies to counter them. Mr. E. Hymakar Reddy discussed about the relevance of responsible mining with respect to the Sustainable Development Goals 2030. Mr. Shrishaila Gowda, Associate General Manager, M/s Sesa Goa Limited had given insight of the practices towards responsible mining by the company. Dr. G. Adhikari stressed on involvement of students for analysing the data in the areas where the problems exist which would be useful for the mining executives to figure out the solutions.



ii) Indian Mining Day was celebrated by Government Polytechnic Bicholim, Goa on 1st November 2016. The students & staff of the department have taken the Pledge. Shri. E. Hymakar Reddy HOD (Mining) & Secretary Goa State Chapter in his address to the students explained the objectives of Indian Mining Day & their role in achieving the objectives of MEAI.



iii) The Mining Department of Goa Engineering College Far-magudi celebrated Indian Mining Day. The students & staff have taken the Pledge.



PRESENTATION ON CRIRSCO INITIATIVE IN CII CONFERENCE BY MEAI

Dr PV Rao, Co-Chair, MEAI-National Core Committee (NCC) for reporting Exploration results, Mineral Resources and Reserves, on special invitation from Mr. DB Sundara Ramam, Chairman, Confederation of Indian Industry (CII)-Eastern Region, Mining & Metals Subcommittee made a technical presentation entitled “**Mineral Resource and Reserve Reporting Standards for India: CRIRSCO Initiatives**” on 28th September 2016 at Hotel Mayfair Convention, Bhubaneswar. The presentation was prepared jointly by Dr PV Rao and Dr Abani Samal. The conference theme was “Increasing Mining Sector Contribution to GDP” and the technical session was focused on “Exploration – Viable Business Models, New Reporting Standards and Sustainable Mining”.

The one day CII conference was graced by Mr Prafulla Kumar Mallik, Hon'ble Minister of Steel & Mines, Government of Odisha as Chief Guest. Mr T V Narendran, Chairman, CII Eastern Region & Managing Director, Tata Steel Limited (India & South East Asia) was the Conference Chairman and Mr Sanjeev Chopra, IAS, Principal Secretary, Department of Industries & Chairman, OMC, Government of Odisha and Mr R K Sharma, IAS, Principal Secretary, Department of Steel & Mines, Government of Odisha were Guests of honour.

The CII conference provided Dr Rao very important opportunity to interact with the mining community from the Eastern region on CRIRSCO (**Committee for mineral reserves International reporting standards**) initiative in India which is spearheaded by the Mining Engineers' Association of India and its National Core Committee.



Dr PV Rao (2nd from left) with Mr. BK Mohanty, Chairman of Technical Session

MEAI BENGALURU CHAPTER:

The chapter organized an Half-day Seminar on 12/11/2016 on 'Mine Economics' at the Conference Hall of the Directorate of Mines and Geology, Bengaluru. In total 35 MEAI members attended to the Event.

Mr.K.R.Krishnamurthy, Secretary, MEAI: BC welcomed the participants. Mr. R.H.Sawkar, Chairman gave a brief speech on the theme of the seminar.

Three papers were presented on the occasion, namely 'Investment in Gold Mining Industry' by Mr.P.N. Scott, Principal, PS Associates, Brisbane, Australia; 'Finance, Accounts and Taxes for Mining Entities/Professionals' by Mr. A. R. Vijay Singh, Chartered Accountant, and National Council Member, and 'Economics of Gold Mining' by Mr.R.H. Sawkar, Chairman, MEAI: BC. Mr.D.V.Pichamuthu, Past Chairman of Bengaluru Chapter chaired the Technical Session.

Mr. Scott gave an account of global demand and supply of gold with various statistics, and explained the methodology of valuation of gold properties before any investment is made. Mr.Vijay Singh lucidly explained the basics of finances and taxation in the country that mining professionals need to be aware of. Mr.Sawkar took the model of Hutti and Gadag Gold Mines and elucidated the factors that matter in the economics of opening a gold deposit for mining.

Mr.Pichamuthu summed up the three papers, and presented mementoes to the authors. Mr.N.Rajendran proposed a vote of thanks.



Section of the participants. Mr.PN.Scott is making his presentation



Mr.A.R.Vijay Singh presenting his paper Mr.R.H.Sawkar presenting his paper.

ALL INDIA MINE SURVEYORS' MEET

org. by **Mining Engineers' Association of India**

on 17th - 18th March 2017, (at Conference Hall, NCB Bhavan) Hyderabad

Mining Engineers' Association of India recognizes the need for the surveyor to rapidly integrate himself to the changing scenario and equip himself with the constantly upgrading resources and no further time can be lost for the surveyors to meet exchange and get them equipped with the future trends. The earlier assumption that a mine surveyor role is pre exploration, during exploration, documentation of exploration and mapping in mine planning as well as monitoring mining activities besides any other local requirements as and when needed is no longer valid and the present time is required to be occupied by direct involvement of various activism and production, distribution and protection of data. The surveyor is expected to have adequate knowledge on geometry, trigonometry, regression analysis, physics fundamental engineering and related law. The work is no longer considered complete and final since there are several angles probed and challenged to suit various agencies and the Surveyor has to produce a finished work which can stand severe scrutiny and accuracy. The essential tools have been the theodolite, total stations, RTK (Real Time Kinematic) -GPS and continue in the hands of a surveyor in most cases.

Changing Scenario: Technological advancements have redefined the art of surveying who now need not depend on his judgment and his every move. The present day equipment come with automated adjustments, error corrections, infra-red distance measurements, even robotic total stations and cannot only display results or readings but can also email and interact with a remote computer. The work of the surveyor has therefore need to refocus on the key roles and look for added applications and new emerging avenues not only to make quality time but also AGAINST BECOMING obsolete. Any person with a Smartphone can access several data which were once a specialized job of a surveyor. With the advent of remote sensing, satellite imagery, the line between local, regional and global had vanished and inter dependence is getting more and more pronounced. Long term tailings into the sea, degradation of land and water use, and ecological disasters arising out of previous activities are coming to knowledge and the resultant caution need to be exercised is more pronounced in the modern day surveyor.

Names like TRIMBLE HEXAGON, LEICA GEOSYSTEMS, TAPCON HUGRO, DEERE & CO, NAVCOM, ORPHEON, SAPOS, VERIPOS AND TERIA are common these days with the advent of augmentation of component manufacture, system integrators, software applications and online resources have brought in sea changes in the role of a surveyor and there is a need for speed, accuracy, availability of data for almost all requirements.

Broad Topics:

1) Latest developments in Surveying and levelling at Exploration level, in underground and opencast mines, Correlation Surveys for surface features such as roads, railway lines, transmission lines, nallahs, tanks, forest boundaries etc., 2) Preparation of plans, geological report, project report, underground and opencast mine workings as per mines regulations, 3) Usage of sophisticated survey instruments such as Total station, DGPS, Scanner, digital mapping etc., 4) Mines to connect to National grid and its need 5) Non Contact Survey: Slope Stability Radar, 6) Use of computers & softwares in surveying, 7) Kinds of projections to prepare the maps and about National grid, 8) Mine regulations implementation and modifications, 9) The status of surveyors in coal industry and requirement & 10) Education, Training & Employment .

Papers on above mentioned themes of are invited by the Professionals, Mining Organizations, and Academicians. The interested manufacturers of the Survey instruments and Surveyors can also contact for exhibition.

For further details contact **Organizing Secretary**, Office: 040 - 66339625, 29801069, 23200510 & Mob: 9298759625, meai1957@gmail.com

IMD 2016 celebrations by MEAI, Bellary Hospet chapter at T.M.A.E.S. Polytechnic College, on 1st November 2016 - Glimpses



Clockwise: 1) MEAI members & Students members welcoming the Chief Guests, 2) Lighting lamp - L-R - S/Sri T.Nazeeruddeen, HOD Mechanical, P.Sreenivas Rao, Secretary, MEAI B-H Chapter, Sri T.L.Yogananda, Vice-Chairman, B.P.Pandey, Vice President (Mines) JSW Steels Ltd., Tornagal & Sri K.Madhusudhana, Vice President-III, MEAI, 3) Taking IMD Pledge, 4) Dignitaries on the dais, 5) Audience & 6) Sri B.P.Pandey, Chief Guest address



Clockwise: 1) Flag Hoisting by Mr.M.James, Chairman, TN-Chapter, 2) Taking Indian Mining Day pledge, 3) Lighting lamp by dignitaries, 4) Honouring of Chief Guest –Prof.Dr.S.Gurdeep Singh, Vice Chancellor, Vinoba Bhave University with citation, 5) Honouring of Mr.K.Gowrappan, Former-Member EAC committee, MoEF&CC, 6) Honouring of Mr.S.Kumarasamy, National Council Member, 7) Honouring Guest of Honour Dr.S.Subramaniyan, Former-Member EAC (Mining), MoEF & CC, New Delhi and member National Biodiversity Board, 8) Honouring of Mr.K.K.Biran, Past President, MEAI-HQ & Founder of MEAI, TN Chapter, 9) Concluding session with Shri.R.A.Krishna Kumar, Exe. Director M/s. Dalmia Cement (B) Ltd and Shri. M.Sundaramoorthy, Sr. Vice President (Works) of M/s. Chettinad Cement Corporation Ltd as special guests.

IMD 2016 celebrations by MEAI, Singareni chapter at various projects of Singareni Collieries Company Limited on 1st November 2016 – Glimpses



Clockwise: 1) Press clip, 2) Taking Pledge in one of the projects of SCCL, 3) Address by Sri A.P.Durai, IPS, Director General of Police (Rtd), 4) 5) & 6) Presentation of mementos to the winners of elocution & essay writing competitions



Clockwise: 1) & 2) Flag hoisting & Pledge at Noamundi office, Tata Steel, 3) & 4) Flag hoisting & Pledge taking at Noamundi Iron Ore Mines, Tata Steel & 5) Indian Mining Day Flag Hoisting at Joda East Iron Mines, Tata Steel

CONFERENCES, SEMINARS, WORKSHOPS ETC.,

02-03 December 2016: National Conference on **"Sustainable Mining Practices (SMP 2016)"** Organised by DEPARTMENT OF MINING ENGINEERING, NATIONAL INSTITUTE OF TECHNOLOGY, ROURKELA- 769008, ODISHA, CONTACT PERSONS: Prof. Amit Kumar Gorai, Convener, Email: amit_gorai@yahoo.co.uk, Mobile +91-7749006070, Prof. D. S. Nimaje, Co-convener/Treasurer, Email: dsnimaje@rediffmail.com, Mobile +91-9437943121

16th December 2016: One Day Training programme on **"Mine Water Management and Environment with Case Studies"** organized by Mining Engineers' Association of India, HQ, Hyderabad, Course Director, Sri D.V.Subbarao. For details contact: Secretary General, MEAI, Mob: 092987 59625, Office: 66339625 & 29801069, Email: meai1957@gmail.com, Website: www.meai.org

19 December 2016: **National Conference Health, Safety & Environment Issues in Mining**, Department of Mining Engineering, MBM Engineering College, JNV University, Jodhpur, Rajasthan. For details contact: Organizing Secretary: A.K. Jaiswal, Cell.: +91 94141 63343, Email : ashjais.64@gmail.com

19-20 December 2016: **"Two-days Manganese/Chrome Ores and Ferro-Alloys Summit"** from 19-20 December, 2016 at Hotel Taj Bengal, Kolkata (India). This Summit will bring together manganese/chrome ore and alloy producers, consumers, technology suppliers, as well as many others interested in the future of these commodities, to discuss technological developments, legislative issues, research and market trends. For details contact: Mr. Pramod Tyagi, Addl. Secretary General Federation of Indian Mineral Industries, FIMI House, B-311, Okhla Industrial Area, Phase-I, New Delhi-110 020, INDIA, Ph: +91-11-26814592/96, Fax: +91-11-26814594/93, Mob. 09818236455, Email: ptpl@fedmin.com

20 - 22 January 2017: 3rd. International Conference on **"Advanced Technology In Exploration and Exploitation of Minerals"** at Jaipur, Rajasthan, organized by Mining Engineers' Association of India, Rajasthan -chapter-Jaipur -Call For Papers -For details Contact Sri P.C.Bakliwal, Organizing Secretary, Mob. 09828668764, Email id: pc_bakliwal@yahoo.co.in, meaijpr2010@gmail.com

27-28, January 2017: Training programme on **"Mineral Legislation Provisions & Procedures"** organized by MEAI, Bengaluru chapter at Seminar Hall, 3rd Floor, Department of Mines & Geology, Khanija Bhavan, Race Course Road, Bangalore 560001. Course Directors, Dr. T.N.Venugopal & Mr. Vijay Singh A R. For details contact: N. Rajendran, Jt. Secretary cum Treasurer, Ph: 080-26613352. Mob: 94498 19341, email: meaibl@yahoo.com/ K.R.Krishnamurthy, Secretary. Mob: 9845203389, email: krishna0305@yahoo.com

1-3, February 2017: International Seminar on **"Mineral Processing Technology 2017"** organized by IIME, Tamil Nadu Chapter at Radisson Blu Resort, Temple Bay, Mahabalipuram, Chennai,

Tamil Nadu – 600 113. For details contact: Sri C.Swamydas, Mob: 094439 92520, Dr.S.Prabhakar, Mob: 094441 05728, Ph: 044 – 22542077/22542529, Email: info@mpt2017.org, Website: www.mpt2017.org

17-18 March 2017: **All India Mine Surveyors' Meet** organized by Mining Engineers' Association of India, in Hyderabad. Main themes: Latest developments in Surveying and levelling at Exploration level, in underground and opencast mines, Usage of sophisticated survey instruments such as Total station, DGPS, Scanner, digital mapping etc., Non Contact Survey: Stope Stability Radar, Use of computers & softwares in surveying, Mine regulations implementation and modifications, The status of surveyors in coal industry and requirement, Education, Training & Employment . Papers on above mentioned themes are invited by the Professionals, Mining Organizations, and Academicians. For further details contact Secretary General, MEAI, Office: 040-29801069, 66339625 & Mob: 092987 59625, Email: meai1957@gmail.com

10th December 2016: Seminar on **Coal Gasification in India**, 1st Edition at Hotel Le Meridien, New Delhi. For further details please contact: Ms Anuradha Roy Indian Chamber of Commerce, ICC Towers, 4, India Exchange Place, 8th Floor, Kolkata – 700001. Phone: 033 2253 4292 (D)/ Mob: 91 8622916603, Fax: 033 2231 3377/3380; E mail: anuradha.roy@indianchamber.net



MINING ENGINEERS' ASSOCIATION OF INDIA

TRAINING PROGRAMME ON MINERAL LEGISLATIONS: PROVISIONS & PROCEDURES

27 & 28 January 2017(Friday & Saturday)
Org. by MEAI, BENGALURU Chapter

Venue: Seminar Hall, 3rd Floor, Department of Mines & Geology, Khanija Bhavan, Race Course Road, Bangalore 560001

For details contact: N. Rajendran, Jt. Secretary cum Treasurer, No. 63, Kavitha Apts, 12th Cross, Basappa Layout, Gavipuram, Bengaluru-560019. Ph: 080-26613352. Mob: 94498 19341, email: meaibl@yahoo.com;/ K.R.Krishnamurthy, Secretary. Mob: 9845203389, email: krishna0305@yahoo.com

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IMD 2016 celebrations at MEAI, Hqtrs, Hyderabad on 1st November 2016 - Glimpses



Clockwise: 1) Taking IMD Pledge, 2) Participants in the Elocution competition, 3) Mr. Bharath Nayak Student from Anasuya Devi Engineering College, Hyd in the elocution competition speaking on the topic, 4) Participation by Mr. M. Vamshi, Student Mining Engineering from AVCR College, Hyd speaking on the topic, 5) Participation by Sri Uday Kumar, Student Mining Engineering from AVCR College, Hyd speaking on the topic & 6) Sri Ameerrul Huda, Mining Engineer speaking on the topic



Clockwise: 1) Sri Ashok Kumar Gupta addressing the students and members, 2) Dr. L. H. Rao delivering the technical paper, 3) Section of the audience, 4) Mr. Uday Kumar Students receiving Certificate memento, 5) Sri M. Fasihuddin, addressing the members & 6) Sri T. V. Chowdary addressing the members



Winners of the Elocution competition receiving Certificates & Mementos

3rd INTERNATIONAL CONFERENCE ON ADVANCED TECHNOLOGY IN EXPLORATION AND EXPLOITATION OF MINERALS

Organised by: **MEAI, Rajasthan Chapter Jaipur**
20-22 January, 2017, Mining Welfare Centre (MWC), Mansarovar, Jaipur

The MEAI Rajasthan Chapter - Jaipur is hosting the 3rd Edition of International Conference in Jaipur. The first two were hosted by MEAI Rajasthan Chapter - Jodhpur in 2010 and 2014.

The broad topics for deliberation include: Exploration Technology, Geo-Informatics and Mineral Resources, Mining Technology, Mining Policies & Legislation, Investment Opportunities & Emerging mineral Avenues, Offshore exploration & Sea bed mining and Use of Solar and other renewable energy resources in Mining.

Language: The official language of the conference will be English

Date Revised Call for Papers: Papers on any of the above themes/ sub-themes may please be submitted, through email, to the Organizing Secretary on or before 30th November 2016. Submissions are to be in Word Format only please.

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Registration Fee (including Service tax @ 15%)

Delegates Category	Registration Fee per delegate	3 or more from the same Organization, per delegate
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Students/ Student Members	₹ 1000/-	Pre register. Only 20 slots on First in, first registered basis.

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The surplus funds, if any, generated from the Conference, shall be utilised for completion of the 'Mining Welfare Centre' – a Social Responsibility Initiative of MEAI at Jaipur

Location: MWC, Near Parishkaar College/ Metro MAS Hospital, Off Shipra Path, Mansarovar, Jaipur-302020

For further details: www.advanceminetech.com

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