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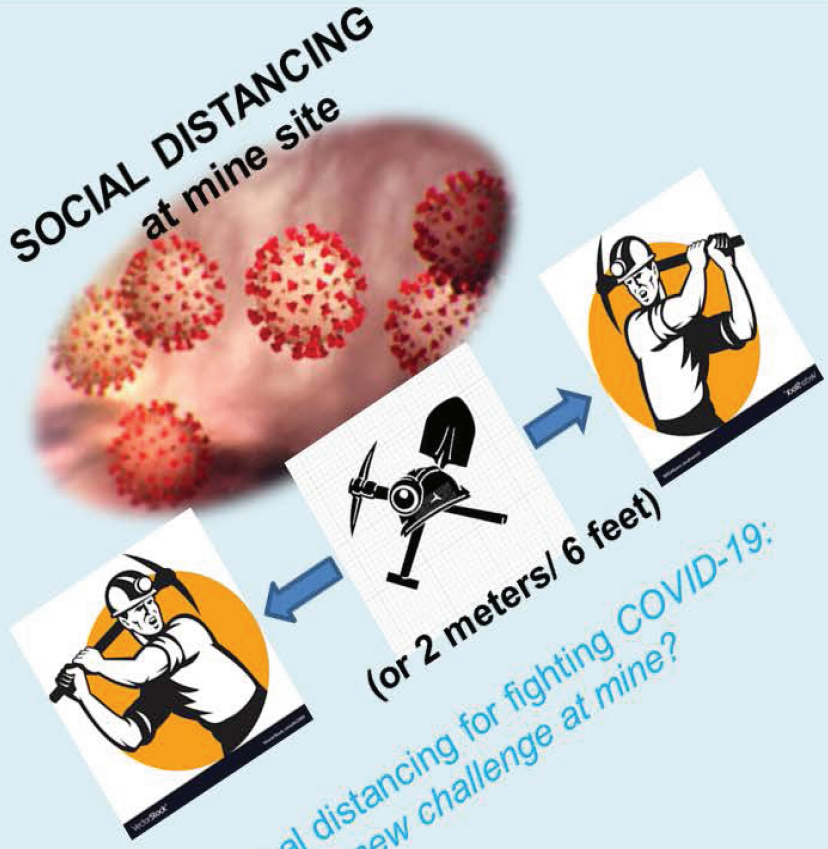
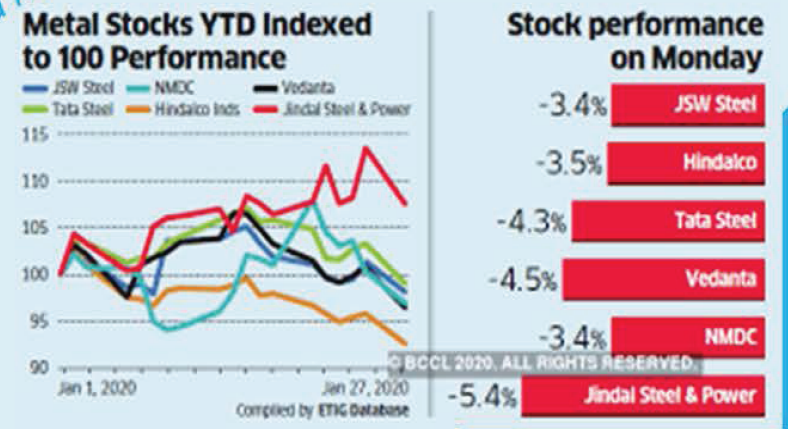


Physical distancing for fighting COVID-19: a new challenge at mine?



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New Editorial Board 2020-21

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Shri Ranjit Datta
Prof Rajib Dey

We sincerely thank all the outgoing members for their encouragements and support for regular publications of the news journal and transaction.

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President's Message

As an overture I express my concern at the spread of Covid-19 in the country and the imperative need to contain and combat it at all levels. I urge you all to take the necessary precautions as advised by the medical authorities and stay safe. Please do not get panicky over unfounded rumours but take all preventive steps and stay indoors till lock down is officially called off.

In India, coal deposits occur in areas that are densely habitated and displacement of people and disbalance of nature is inevitable in the process of mining operations. To protect the environment, forests, fauna, resources and the interests of the people mining regulations are framed. Mining companies may feel disadvantaged by these regulations but they have to be respected. Over the years mining companies have been able to operate within the frame work of these regulations. Need of protecting the environment and habitat of the people is as important as mining a mineral. A judicious balance has to be resorted.

My only suggestion, from a mining company's perspective, is that the regulatory green clearances have to be fast tracked and there should be a solution for actual possession of land. Necessary Inter-Ministerial guidelines in this regard are already in place and the need is to hasten the process that would help mining supportive decision making.

It is heartening to note that even as the country is battling the Corona virus, coal mining operations are continuing unhindered. Power Sector is flush with never-before witnessed high coal stock of close to 45 Million Tonnes and importantly there is not a single power unit in critical or super-critical situation for want of coal as the fiscal 2019-20 drew to a close.

MGMI true to its commitment, should promote the scientific study of mining and mineral industries of the country and stand out by itself. We receive valued support from many mining and mineral industries. It then becomes our obligation to yield to the confidence reposed in us by them to deliver what is expected of us. I may further add, we need to discharge our responsibility to the society and country as well at this juncture.

Kolkata
31.3.2020

Anil Kumar Jha
President, MGMI

From the Editor's Desk

Mining Tomorrow: Intertwining Progressive Mining with Mineral Policy and Regulation

Mining, widely regarded as the oldest profession of the world, has been subject to regulations from the ancient times. The very first mineral regulation in the world was recorded in Kautilya's Arthashastra, where the Agricola discussed mineral economics and its subsequent regulations. The 18th and 19th centuries saw the introduction of various guidelines from different countries, like the British mining laws, Austrian Mining Act, French Mining Code, etc. Today, although every country is well equipped with its own set of mineral policies, there is a growing need of an international code of regulations; especially since mineral supply has become a vast global market.

In India, the first National Mineral Policy was enunciated by the Government of India in 1993 for the liberalization of the mining sector. The National Mineral Policy, 1993 was primarily aimed at encouraging the flow of private investment as well as the introduction of state-of-the-art technology in exploration and mining. The history of Indian mineral policy has been discussed by D. V. Pichamuthu in his article Note on the Evolution of India's Mineral Policy and its Impact on the Mineral Industry published in the JOUR. GEOL. SOC. INDIA, VOL.78, SEPT. 2011

The mineral distribution on the earth crust is not uniform, thus, mining and mineral trade has evolved to be a global phenomenon. The multinational companies that carry out mining operations in different countries, have to act under the legal requirements governing the same in that country. The mineral policies of each country is a part of their economic policy, and is consequently also a part of the politics that shape the nation's economy. Mineral policy can be defined as entirety of action of a state for influencing supply of and demand for mineral resources on its territory and beyond that. The mineral policy aims at achieving mineral security for the country's developmental needs. In other words, the protection and exploitation of mineral resources require a mineral policy which would not only facilitate the production and distribution of the minerals, but would also contribute to the nation's economy. However, this focus on the non-compromising national development must be keep pace with the increasing economic liberalization and globalization. The policies must give appropriate provisions to create a healthy business environment for national as well as global mining.

Despite the individuality in the laws of each country, there are certain general regulations that govern mineral grouping and the assignment of mining rights. These laws discuss the provisions for exploration, prospecting, and exploitation license, in addition to determining the necessary authorities for granting permissions as well as the taxes and fees.

The laws are carefully framed to defend the rights and privileges of the local community, provide optimal solutions for environmental protection, including mine closure aspects in order to restore the mine site for post mining land uses.

The mining industry greatly differs from other industries, and thus, also requires different sets of rules and regulations. The extensive regulations may fall within the jurisdiction of different ministries (environment, forest, mining, economy, finance, energy, trade, land use, etc.). A mine operator must comply with these various laws that differ depending on the country.

Ties, Guenter, 2011, General and International Mineral Policy, Springer-Wien-Newyork, pp138

The main aim of these laws and regulations, is to set a legal framework in order to accelerate orderly and sustainable development of the mineral industry. Thus, mineral policies and laws need to be investor friendly, environment supportive and must be compatible with the governing. This calls for developing national mineral policies in the context of other relevant legislation, particularly those that relate to the field of environment, health and safety, taxation, customs, corporation, law, and investment incentives. Once mineral rights (permission, licenses or concessions) are bestowed and other approvals have been granted, the responsible authority has to ensure the genuine fulfillment of the regulations and obligations that were agreed with the investors.

Laws related to the exploration, exploitation and marketing of minerals must also take the features of mineral deposits and their occurrences into account. In addition, the entire legal process that are involved in the mining business must not be extremely costly. The legal framework should avoid bureaucratic friction and prohibitive transaction costs.

With the advent of science and technology like in other sectors, mining industry is also rapidly evolving and advanced innovative technologies are being introduced. Due to this, information driven safety decisions are now a reality. This could enable safe mining in some of the previously prohibited zones. Furthermore, Industry 4.0 will be bringing in rapid transformations in the ways of doing business and accessing mineral deposits for exploitation. However, specific energy required for exploiting mineral deposit may change. Because of new environmental challenges, different types of technology control will be necessary. Thus, the legislative regime will have to be relooked for its adequacy with the present change management. The acts of mine closure and lease handover for different land use would see different business models in the near future. A number of venture international collaborations and cooperation would be called for, as the solution to specific problems will always be available as a cross boundary expertise. Use of such expertise and the encouragement of local innovation may also require new legislative provisions. The mining industry may need new regulations for encouraging Public Private Partnership, in order to continue outsourcing practices for critical operations, share the infrastructure as well as the responsibility of environmental protection and nature conservation, by all the stakeholders, including the mining and service providing companies.

The National Mineral policy is drawn by considering foreign policies, development policy, fiscal policy, land use planning policy, environmental policy, research and innovation policy, etc. in order to ensure an optimal, demand oriented, cost effective, timely and environment-friendly supply of raw materials for the economic growth without damaging the deposits with future potential.

Indian mineral policy has recently been amended. However, the industry must keep its own vigilance while implementing these policies in their mining. There is a need to cautiously judge the effectiveness of the policies in adequately curbing pilferage and wastage, sealing the scope of fiscal or other malpractice, and promoting innovative methods of mining. The realization of a good policy should be reflected in the development of new mines. They must also provide a smooth and easy manner of doing business, along with the simultaneous growth of supporting infrastructure. In India, considering the lack of new mines developed in the last few years, coupled with the fact that a lot of time and efforts have been involved in migrating from prospecting lease to mining lease, our new mineral policy will have its litmus test only when there will be good FDI and when new mines with advanced technologies will start operating.

Dr. Khanindra Pathak
Prof. IIT, Kharagpur

Photo Gallery

Short Term Course cum Workshop on Global Environment and Greenhouse Gases from Energy Systems: Estimation and Mitigation

GEM 2020

20 - 25 January 2020

Dr P K Singh, Director, CSIR-CIMFR lights the lamp with Prof S P Banerjee, Former Director, ISM, Dhambad, Dr Amalendu Sinha, Former Director, CSIR-CIMFR & Programme Coordinator & Dr D Mohanty, Coordinator.

Dr P K Singh, Director, CSIR-CIMFR felicitating Prof S P Banerjee with Dr Amalendu Sinha.

View of dignitaries, invitees, speakers and participants.

Photo Gallery

Calcutta Chapter
Annual Get-together 2020

Photo Gallery

Calcutta Chapter
Annual Get-together 2020

Bhubaneswar Chapter
11th Council Meeting

Persons in The News

Shri Pramod Agrawal

Chairman-cum-Managing-Director, Coal India Limited

Mr. Pramod Agrawal, an Indian Administrative Service Officer of Madhya Pradesh Cadre 1991 batch, took over as Chairman, Coal India Limited (CIL), the world's largest coal producing company, on and from 1st February 2020. Prior to the assumption of the top post of the Maharatna coal mining behemoth, he was Principal Secretary, Department of Technical Education, Skill Development & Employment and Department of Labor, Government of Madhya Pradesh.

Mr. Agrawal succeeds Mr. Anil Kumar Jha who stepped down as Chairman, CIL on attaining superannuation on 31st January 2020.

A Graduate (B.Tech) in Civil Engineering from Indian Institute of Technology (IIT) Mumbai (1986), Shri. Agrawal completed his Post-Graduation in Design Engineering (M.Tech) from IIT, Delhi (1988).

On assuming the charge of the company that produces over 83% of the country's entire coal output, Mr. Agrawal underlined his priority as "to make Coal India a competitive, economically viable business entity, in the changing scenario, with greater emphasis on operational efficiency and lowering the cost of production. Coal imports to be curtailed to the extent possible with higher coal output".

Mr. Agrawal has 28 years of administrative acumen under his belt in varied fields of Public Administration, as Principal Secretary in the State of Madhya Pradesh, which include Urban Development & Housing Department; Public Health Engineering Department; Public Works Department and Transport Department. He was also Managing Director, Madhya Pradesh Finance Corporation. He served as Chairman-cum-Managing Director of Madhya Pradesh PaschimKshetraVidyutVitaran Company, and as Chief Executive Officer of Madhya Pradesh Rural Development Authority. He was the Collector of Morena and Mahasamund District of Madhya Pradesh.

Mr. Agrawal brings with him rich repertoire of managerial experience to Coal India Limited. He also served as Joint Secretary, Department of Disinvestment, Ministry of Finance, Government of India and as Director in Ministry of Youth Affairs and Sports Government of India.

Mr. Agrawal received professional training in Project Appraisal and Risk Management from Duke University, Raleigh, USA; Management of Technical Cooperation Projects from ILOTC Turin; Programme on Infrastructure Development and Financing from IIM, Ahmedabad; Infrastructure Planning and Management from IIM, Bangalore; Study on Road Management Policies and Practices from Royal Melbourne Institute of Technology, Melbourne.

Mr. Agrawal has several papers published to his credit like "implementing Rural Roads Project in Madhya Pradesh" and "Procurement Reforms under PMGSY in Madhya Pradesh".

Mr. Agrawal is recipient of "Award for Infrastructure Development by Housing and Urban Development Corporation (HUDCO) for exceptional work done for PMGSY Project", "Red Cross Special Award for Improvement of Medical Infrastructure while working as Collector of Morena District".

Persons in The News

Shri N Sridhar

Chairman and Managing Director
Singareni Collieries Co. Ltd.

Chairman and Managing Director Shri N Sridhar Singareni Collieries Co. Ltd., to receive one more International level award in recognition of guiding Singareni to achieve tremendous growth which no other company had achieved. Shri Sridhar has been selected for Bharatiya Mahantam Vikash Puraskar Award in the name of 'The Leader' for the year 2019-20. The award is given to deserving people in the field of Commercial, Business and Industry.

For the year 2019-20 in a two phase analysis Shri Sridhar has been recognized for his outstanding efforts in taking Singareni on the path of unprecedented growth. This is a great recognition of his leadership.

Shri Sridhar was instrumental in the commissioning of Singareni Power Plant and making it as one of the best Thermal Power Plants. Singareni became the first coal company to also start Solar and Thermal Power Generation.

In AsiaOne selected Sridhar in recognition of his skills in taking the company on the path of growth and recognized him as one of the great leaders in Asia and hence are presenting this award. Shri Sridhar said that the Company is on the top due to the efforts of the Singareni workers and cumulative efforts of the officials. The International award by AsiaOne is the recognition of the team effort of Singarenians.

Mr Bimlendu Kumar

Director (Personnel)
Northern Coalfields Ltd

Mr Bimlendu Kumar Joined as Director (Personnel) in Northern Coalfields Ltd on 25/2/2020 B.Tech in Mining Machinery and M. Tech in Industrial Engineering and Management from ISM, Dhanbad, PGDIRPM, DCO Life Member : MGMI and NIPM Experience: Worked as General Manager (Administration & Welfare) CCL from 1.9.17 to 24.2.2020 Major Work- Involved in opening of Kayakalp Public School meant for poorest among poor, Rozgar sahayata Kendra for guiding villagers in getting job.

Implementation of Aadhaar Enabled Biometric System in HQ. He contributed to the formulation of number of important guidelines and policies for CCL and implemented number of compliances regarding statutory welfare requirements and got many welfare project completed. He also contributed for skill development during his tenure as HoD (HRD and P&A) during 2008-2017

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MGMI

Persons in The News

Congratulations ***Team ECL*** under **Sri P. S. Mishra CMD** for Jhanjra **RECORD COAL PRODUCTION FROM UG**. Extreme right Mr Abhijit Mallik former GM Jhanjra, Sri AK Mishra former GM Jhanjra, also played a significant role in stabilization of Jhanjra operations. Present Area GM Jhanjra Sharmaji successfully carried forward the efforts of all to reach highest ever production from UG.

Shri. Anil Kumar Jha, Chairman, CIL, Shri. Saroj Kumar Sadangi, CVO, CIL & Shri. S. N. Tiwari, Director - Marketing, CIL with the "Public Sector of India" award conferred on CIL at the Energy Meet 2019 & Excellence Awards of ASSOCHAM

Coal India Ltd. has bagged the award for best 'Strategic Performance' in the 'Maharatna Category' at the Governance Now 7th PSU Awards held in Delhi on 19th February,2020. Shri. Arjun Ram Meghwal, Hon'ble Minister of State for Parliamentary Affairs, Govt. of India gave the award to Shri. G. S. Bhati, GM, CIL Delhi who received the award on behalf of CIL. Ex-Chairman Coal India, Mr Anil Kumar Jha, President MGMI

Evolution of the MMRD Act

The first amendment of the Mines and Minerals (Regulation and Development) Act (MMRD Act) was made in 1972, enhancing government control through such measures as premature termination of mining leases (ML), lowering of ceiling on individual holdings, for the Central Government to undertake prospecting and mining in certain areas, removal of ceiling on royalty. The next amendment made in 1986 was even more regressive. First schedule minerals for the mining of which, prior approval of the Central Government had to be obtained, were increased from 27 to 38, the Central Government was authorised to reserve areas for Public Sector Undertakings (PSU's) and approval of mining plan was made mandatory. The MCDR was revised in 1988 to enable IBM to monitor and regulate all mining activities.

Letter to the Editor

Dear Sri Dr Pathak ,

We organized "11th MGMI-Bhubaneswar council meeting on 15/2/2019 followed by TWO Important Technical paper readings at MDC ON SHE, Patia, Bhubaneswar

Sri J P PANDA, Vice Chairman presented a paper on the important topic - *How to improve Face Operational Efficiency in a large Opencast Project*. Many innovative areas were addressed so that Productivity per Machine/ Man is improved. These apparently smaller areas when improved will improve the Profitability of the Big Mining Projects with capacity of 10 MTPA of Iron ore/ Coal & reduce the cost of operation. This in turn will make such Costly Projects (Investment >2500 Crore INR for a 10 MTPA iron ore projects). Such mines are planned with mechanized operation, computerized mine planning /operation, crushing, screening along with beneficiation facility & fast loading facility with application of Stacker, Reclaimer, Wagon loader. These ventures ensures uniformity in physical & chemical parameters demanded by the steel makers for achieving high blast furnace productivity, which can be of the tune of 2 te/m^3 volume of blast furnace. Raw Materials in Iron ore prepation in Ore Bedding & Blending Plants in Steelworks is very useful to ensure floatation in Fe content by +/- by 0.5%, SiO2 at +/- 0.2% & Al_2O_3 at 0.20% .The standard deviation will be 0.5% for Fe%, for Silica/Alumina say 0.2%, besides size variation in 2-3%. Iron ore preparation is also done in SAIL/NMDC /TATA STEEL MINES. *The Editor sincerely thanks Mr G. S. Khuntia for the continuous effort to keep the Bhubaneswar Chapter vibrant keeping us informed.*Thus, uniformity in physical sizes & chemical variations is very important in blast furnace for high productivity. The Responsibility of mining engineers in steel plants with captive mines does not end at railway siding of mine after Iron ore (Lump/or Fines) are loaded, but at OBBP in STEEL WORKS , at least in SAIL. GM(Mines) is responsible till raw materials are delivered in steel works. Mining engineers in Captive mines in future has to learn "Quality Assurance" aspect, for the Company to be Highly Profitable

Sri Shuvam Dash presented a co-autheored paper "for surveying in mines /Dams Projects/for Contouring, Volume measurements of very Irregular bodies, Dumps in mines, Rocky areas, Opencast mine benches" on behalf of the TEAM INVENT GRID . For systematic strip mining, imaging by use of **drones** are used.. This application is somewhat new in Indian mines and has promise of wide ranging application in Mines, particularly for Stock measurement in Iron ore and Coal Mines, Bench wise Reserve estimation, estimating Cuttings /Excavation volume in designing a new haul road in Big Opencast Mining Project, Boundary Survey in mines and marking of Boundary Pillars, Counters generations in 5m /2m/1m intervals for quick preparation of topographical maps in opencast mines & many more applications. Though SURPAC software is used for these purposes, the use of drones will be quite faster, though accuracy may be within 2-5% variations.

Copy of the power point presentations of the above papers was sent to all Council Members of our Branch as per earlier decision with a copy to you.

Besides, kindly send us "Some 12 copies of MGMI Bulletins-hard copies of your next publication by Courier for distribution among Important Members".
Regards

Sincerely yours

(GS Khuntia)

Chairman, MGMI-Bhubaneswar

The Editor sincerely thanks Mr G. S. Khuntia for the continuous effort to keep the Bhubaneswar Chapter vibrant keeping us informed.

Headquarters Activities

Report on Short Term Course cum Workshop on

"Global Environment and Greenhouse Gases from Energy Systems: Estimation and Mitigation (GEM 2020)"

Jointly Organized by

CSIR-CIMFR, Dhanbad and MGMI, Kolkata

20-25 January 2020

India being a party to United Nations Framework Convention on Climate Change (UNFCCC) has the obligation to submit GHG inventory through periodic national communications. India's current rise in CO_2 emissions is strongly linked to the coal supply and consumption rates. Likewise, oil and natural gas production, processing, distribution and consumption especially in transport sector also constitute a key source category. CSIR-CIMFR is engaged in preparation of emission inventory from Indian energy sector under the aegis ofMinistry of Environment, Forest and Climate Change (MoEFCC), Government of India since the initial national communication toUNFCCC.

This short term course was organized by The Mining, Geological & Metallurgical Institute ofIndia, Kolkata, in collaboration with CSIR-CIMFR, Dhanbad with the objective to discuss and deliberate various intricacies in deep decarbonisation in the energy sector of the country and to share the R&D knowledgegained by CSIR-CIMFR in the journey through preparation of various national communication to UNFCCC.

In the Inaugural Function Dr. Pradeep Kumar Singh, Director, CSIR-CIMFR, was the Chief Guest and Prof. S. P. Banerjee was the Guest of Honour. Dr Amalendu Sinha, Former Director, CSIR-CIMFR, Dr. Debadutta Mohanty, Principal Scientist, CSIR-CIMFR and Course Coordinator, and Shri Prasanta Roy, Immediate Past Honorary Secretary were present on the dais. Shri Ajay Raghava, Joint Director, MoEFCC, Shri Dilip Kumbhakar, Senior Principal Scientist and Head/HRD, CSIR-CIMFR,Prof. Prof Runa Sarkar, IIM Calcutta, Shri R PRitolia and Shri R K Saha, Past Presidents of MGMI and other guests were also present during the Inaugural Session. About 30 Executives from a proper mix of coal, oil & gas, power generating companies including NTPC, NCL, MCL, SECL, TATA, MECON, RIL, ONGC etc. had attended the programme.

Shri Prasanta Roy conducted the programme and welcomed Dr. Pradeep Kumar Singh, Director, CSIR-CIMFR and Chief Guest of the function by presenting the flower bouquet. While welcoming all the distinguished guests, speakers and participants, Shri Roy expressed his gratitude to thedistinguished invitees for attending the session and said that many such training programmes are being planned to be organized for the benefit of the industries.

Dr Amalendu Sinha said that the short course has been specially structured to share with the participants about the latest developments in the methodologies,measurement procedures and best practices for preparing GHG inventory for energysector and various mitigation options.

Prof. S. P. Banerjee emphasized the role of coal in Indian energy mix and told that the course will provide impetus to the industry to measure and monitor the greenhouse gases for mitigation purpose. Shri R. P.Ritolia and Shri R. K.Saha have also appreciated this joint effort of MGMI and CSIR-CIMFR to organize this course as global warming is now a real menace. Participants also introduced themselves and expressed about their expectations from the programme.

Dr. Pradeep Kumar Singh, the Chief Guest of the function in his inaugural address congratulated MGMI and CSIR-CIMFR for this timely effort for organizing the short course to address this important global issue. He highlighted that CSIR-CIMFR has remained in the forefront for providing scientific and design solutions to the industries along the entire coal-energy chain with its rich knowledge base and is recognized for its contribution in coal mine methane resource evaluation, exploring scope of in situ coal gasification and CO_2 sequestration to address the issue of GHG emissions associated with coal winning and utilization. However, he pressed upon the fact that the emission reduction goals should be achieved without affecting the developmental of goals of the country and this programme will provide a platform for intensive interaction between the participants and the experts to address the issue.

Dr. Debadutta Mohanty, Course Coordinator concluded the session with vote of thanks. He expressed his hearty thanks to NTPC for being the Platinum Sponsor and MoEFCC for support. He also expressed his thanks to different companies for sparing their executives for this important programme.

Shri Ajay Raghava, Joint Director, MoEFCC delivered a special lecture following the inaugural session about various aspects of climate change and, role and initiatives by MoEFCC, Govt. of India to combat climate change consequences.

Glimpses of the Inaugural session are presentedwith few photographs of the occasion in the PHOTOGALLERYSection.

First two-days, 20-21 January 2020, the programme was conducted at MGMI Kolkata. The participants visited Budge Budge Plant of the Calcutta Electric Supply Corporation (CESC) on the second day, 21st January 2020. Budge Budge Generating Station is the World's first power plant to earn CER from UNFCCC and to achieve 100% recycling of effluent. The participants were explained about different units of the power station. On 22nd January 2020, the participant visited SAIL Durgapur Steel Plant. Durgapur Steel Plant set up in late fifties is a leading producer of long products and only producer of Forged Railway Wheels and Axles in the country with present saleable steel capacity of 2.12 MTPA. The participants were explained about different units of the plant through model room visit and power point presentations by the experts. The rest of the programme was organized at CSIR-CIMFR, Dhanbad during 23-25 January 2020.

Altogether fifteen lectures were delivered by domain experts from Ministry of Environment, Forests and Climate Change, IIMs, Jadavpur University, CSIR-CIMFR, Dhanbad, IORA Ecological Solutions Pvt. Ltd., ONGC and MGMI members covering climate change issues, greenhouse gas emission scenario, regulatory framework, unconventional gases resources, energy efficient combustion technologies, carbon finance etc. along with interactive sessions and, plant and laboratory visits.Topics discussed in the short course are:

- MoEFCC and Climate Change Issues
- Towards the Mitigation of GHG Emissions through the Integration of Circular Economy Concepts into the Operations of the Coal Mining Industry
- Coal in the energy mix of India: Current Scenario and Future Projections
- Environment, Society and Ecological Footprint
- Energy system transformation to meet NDC, 2 °C, and well below 2 °C targets for India
- Mitigation Policies and Trends of GHG Emissions from Transport Sector
- Measurement of CO_2, CO, SO_2, and NO emissions from coal-based thermal power plants in India
- Fugitive methane emissions from Indian coal mining and handling activities: estimates, mitigation and opportunities for its utilization to generate clean energy
- GHG emission from fossil Fuel combustion from Energy and Manufacturing industries
- Energy efficient combustion technologies
- Co-combustion technology for reduction of GHG emission
- MMV: Ensuring safe storage of CO_2 underground
- Recent Trends of Fugitive Methane Emission from Oil and Natural Gas Systems in India and Mitigation Options
- Mercury emissions from coal combustion: its contemporary relevance
- Carbon Finance

Shri S. K. Paul, Group General Manager, CBM Asset, ONGC Bokaro had graced the valedictory session as Chief Guest. Feedbacks about the programme were collected from the participants. Shri Paul briefly outlined the ONGC's climate response plan in his address.

Chapter Activities

Bhubaneswar Chapter

MINUTE OF 11th COUNCIL MEETING OF MGMI BHBANESWAR CHAPTER

MGMI Bhubaneswar Council meeting was held at 4.30 PM on 15/2/2020 (3rd sat day) at MDC on SHE at PATIA, Opposite CEPET ENGG on Info City Road, Bhubaneswar in presence of:

1 Sri G S Khuntia - Chairman presided over the meeting
2 Sri J P Panda , Vice Chairman
3 Dr B M Faraque , Council Member
4. Sri N P Pramanik, Council Member
5 Sri J K Hota, Council Member
6 Sri Shuvan Dash, Member of INVEST GRID
7 Sri P K Mishra, Council Member
8 Sri J N Praharaj, Council Member
9 Sri G N Sahoo, Council Member

DISCUSSIONS

1 Confirmation of last Council Meeting
2. Bank balance & some Fund raising Matter
   (a) Bank Account Status
   (i) Balance - Rs 47616/ as on 21/1/2020
   (ii) Printing of a Journal with Advertisement of M/s Bhusan Power & Steel for Rs 20000/ RENTAR - 25000/ OMC-25000/ are yet to be made
   (b) Expenses in last Council Meeting on 15/2/2020

Sl No	Account of Expenditure (Rs)	Payable to	Amount paid (Rs)	Cheque Details
1	Hall charges including LCD, Audiovisuals	Secretary, MDC ON SHE, Info city, Bhubaneswar	MGMI chq for Rs 3760/ issued to MDC (a) Rs 2800- towards Hall charges with audio Visuals (b)Tiffin charges-960/-	Cheque No-546062 dated 24/2/2020 for Rs 3760/-
		Total Expenses	Rs 3760/-	

3 A VIDEO presentation by TEAM INVENT GRID - Sri Shuvum Dash &others "for surveying in mines/Dams Projects/for "Contouring, Volume measurements of very Irregular bodies, Dumps, Rocky areas, Opencast mine benches" for their systematic strip mining from higher altitude imaging by use of DRONES was made. They had presented a cheque of Rs 10000/ towards promotional activity of MGMI-Bhubaneswar

4 Plan of action for 2020-was discussed and to be perused continuously

(a) Some Efforts are necessary for getting some Advertisements for MGMI activities, Chairman had also explained the position, we are also due to receive 25% of Membership fees from MGMI-HO. Reminder to go for this

(b) We have received financial help by Advertisements from "RENTAR, Pune/USA-25000/ (INR) &recently from OMC-25000/ (INR) & now from M/s INVEST GRID- Rs 10000. with thanks for Paper reading & promotional activity

(c) Our Bank Balance today – 47616/ as on 15/2/2020

(d) MEMBERSHIP DRIVE –Further efforts are necessary for this & Chairman has written letters /WA messages to new recruited Mining Engineers/Geologists; 5 Life Member

applications were forwarded in January & Febuary-2020 from OMC Officers. We expect another 6-8 Applications

5 Chairman had also talked & perused with Sri R K DASH, GM(MM) & Sri LK Prusti, GM(Projects) with 3-4 Mech Engrs Officers under each, they have assured membership very soon

6 Renewal of membership- As Some of MEMBERS are for ONE YEAR DURATION, EFFORTS must be made for extension of duration/Life membership by issuing letters/Mails immediately , Hony Secretary has to make a vigorous DRIVE for this. Sri Khuntia had sent many E Mails/WA messages /spoke on phone to them all /besides Whats App messages, . Some 5-6 ANNUAL MEMBERS have however renewed their membership subscription. I suggest that Let us submit by collecting Cheques from some Members whose renewal of fees to be done immediately.

7 There is a proposal for organizing "One International Seminar entitled INTER-NATIONAL SEMINAR ON STEEL & POWER INDUSTRIES OF INDIA BY 2030, RAW MATERIALS RESOURCE DEVELOPMENT, CONSTRAINTS on 12/2020" with MDC in collaboration by MGMI-BBSR, support from Odisha Govt-Steel & Mines Dept & steel & Mines ministry of GOI & DGMS organization also will obtained. Sri GS Khuntia, Chairman, MGMI-BBSR (who is VP of MDC ON SHE) has already discussed in MDC on SHE & MDC has agreed .For this help in obtaining assistance from MGMI-HO/ DGMS/ other related GOI organizations/ Mining Industry shall be taken .This was informed to MGMI, HO. We will Invite MGMI- President for Inaugural function

8. SPECIAL Technical Paper PRESENTATION

(a) By Sri JP PANDA, Vice Chairman –How to improve Face Operational Efficiency in a large Opencast Project

(b) Presentation by TEAM INVENT GRID - Sri Suvum Dash &others "for surveying in mines/Dams Projects/for "Contouring, Volume measurements of very Irregular bodies, Dumps, Rocky areas, Opencast mine benches" for their systematic strip mining from higher altitude imaging by use of DRONES-LCD & LAPTOP were provided

9 Another Points with permission of CHAIR-International Seminar

10 Votes of Thanks by Sri J K Hota, Council Member

Sd/-DK Mohanty
Hony Secretary, MGMI-Bhubaneswar

Chapter Activities

Calcutta Chapter

ANNUAL GET-TOGETHER 2020

MGMI Calcutta Chapter, a branch of the 114 year old The Mining, Geological and Metallurgical Institute of India (MGMI), is known for its unique activities. Apart from time to time organizing workshops / seminars, lecture sessions on topical techno-scientific issues, it makes conscious efforts to promote interaction amongst its members and families. The Chapter (earlier Branch) was established in 1991 and since then organizing a family get-together annually that has become a flagship event of the Chapter. If we go back to the history, first Executive body meeting of this Chapter (branch) was held during a river cruise on Hooghly River on 15/08/1992 where the decision of organizing such get-together meetings was taken. From 1993 this event is being arranged every year uninterruptedly at different venues. The 28th Annual Get-together was held on 19th January 2020.

During the last 27 years the venue of the event was being arranged in and around Kolkata. This year it was decided by the Executive Committee to venture out of Kolkata. It was arranged at Nirala Resort, a well-known place for such event at Deulti, east of Kolaghat. The place is about 65 kilometers from the heart of Kolkata, located off the Kolkata – Kharagpur National Highway No 6 (old). The resort is spacious, refreshing with peaceful atmosphere set in lush green surroundings and is a much needed weekend getaway which one needs in the time-defying rush of life. An added attraction is Sarat Chandra Kuthi, also known as Sarat Smriti Mandir, a house museum located in the village of Samta on the banks of the Rupnarayan river, which is 2 kilometers from this place.

The daylong event was attended by about 120 persons comprising members and their families. Four luxury coaches picked up the participants in the morning from different parts of Kolkata and outskirts, and dropped them back in the evening. The journey being a bit long, dry snacks was served in the bus. The entire proceedings of the get-together was guided by Dr A. K. Moitra, Chairman, MGMI Calcutta Chapter, ably supported by S/Shri Ranjit Datta, S R Panja, Muktipada Das, Shiba Prasad Roy and Dr B B Sen.

Before landing at the resort, members visited the Sarat Smriti Mandir. It is noted for being the house of the famous Bengali novelist, Sarat Chandra Chattopadhyay for twelve years. Sarat Chandra Kuthi is a heritage-historical site protected under the West Bengal Heritage Commission Act (IX) of 2001. Sarat Chandra Chattopadhyay's works such as Devdas, Baikunther Will, Dena Paona, Datta, and Nishkriti among others were serialised during his stay there. He also wrote Ramer Sumati and Mahesh among others during his stay in the house.

Activities at Nirala Resort commenced with breakfast with luchi, aloordom, misti, tea. Friends, colleagues, alma maters, professional acquaintances and their families remained engrossed the whole day in 'adda' (chatting).

Then was the sports activities interspaced with many other fun and frolic, conducted by Aminul Islam and Kamal Ghose with help from other members. There were sports items for all age groups. For children, the items were short Races, Roll the ball and Hit the target. For ladies, it was Basket the ball, Passing the ball and, for men, Hit the wicket. A common item was Bomb Blast. Most participants took part in the items joyfully, the elders watching their junior family members enjoying heartily.

The sports activities were interspersed with fried snacks (pakauras) and beverages.

Maximum enthusiasm was noticed in the game of Housie in which almost all participants took part.

Members were treated with fresh green coconuts (daabs), directly brought down from near-by trees, by Sambhu Chakrabarti, the generous treasurer of MGMI Calcutta Chapter, from his personal account. Our sincere thanks to him for his kind gesture.

Members enjoyed the open-air sumptuous lunch on a sunny wintry afternoon, while gossiping with friends and acquaintances.

After the afternoon coffee, prizes were distributed to the winners of the individual sports items. At the conclusion, participation mementoes along with diary and calendar, printed by MGMI Calcutta Chapter, were presented to the members before leaving.

At the end of the day, members were dropped back to their respective places.

The Executive Committee of MGMI Calcutta Chapter expresses sincere thanks to all the participating members and their families for making the event a grand success.

News About Members

New Members

(As approved in Council Meeting on December 28, 2019)

As Life Member

10824 –LM, Shri Ajay Kumar Jha, M.Sc (Geol),PGDMM,Sr. Director, Quality Council of India (QCI)A – 101, Tower – A, Chintels Paradiso,Sector – 109, Dwarka Expressway, Gurgaon, Haryana – 122017Ph: 8800795361(M), 011-23323416, Mail: akjha66@gmail.com

10825 –LM, Shri Amar Prakash, BE(Min),(M.Tech.MinEnv.)Ph.D(Min), Principal Scientist, CIMFR,Room No. 34, Main Building,CSIR – CIMFR, Barwa Road, Dhanbad – 826001, Jharkhand, Ph: 9431315038, 0326-2296005, Mail : amar_cmri@yahoo.co.in

10826 –LM, Shri Vijay Haridas Patil, Dip in Auto Engg., Degree (MechEngg), Dy. Director of Mines Safety (Mech), DGMS, Bunglow No. B-3, Officers Colony (DGMS), Station Road, Sitarapur -713359, Dist. Burdwan, WB, Ph: 9407813398,0341-2514207, Mail: vijay.patil@dgms.gov.in

10827 –LM, Prof.Lala Behari Sukla, Sc.(Met), M.Tech (Met),Director, BBRC, SOA University,117, Oditech Lagoon Apartment, BDA Colony, Chandrasekharpur, Bhubaneswar -751016 Ph: 9937081852, 0674-2350642 Mail: lalabeharisukla@soa.ac.in

10827 –LM, Prof. Amit Kumar Sen, M.Sc (Appl Geol., M.Sc (Tech Mineral Explo), Ph.D (Appl. Geol), IIT Roorkee, Department of Earth Sciences, Roorkee – 247667,Uttarakhand, Ph: 9412070623, 01332-28557,285349, Mail: senakfes@gmail.com

As Life Corporate Member

10829-L.Corp., Coal India Limited, Coal Bhawan, Premises No. 04-MAR, Plot No – AF-III, Action Area 1A, New Town, Rajarhat, Kolkata 700 156.

The Oldest Mine in the World - KHEWRA SALT MINE, Pakistan

While mining is nothing new, with archeologists finding evidence that the history of mining goes back to the ancient

world, it is rare these days to find mines that have continued to produce on a commercial scale. Dating back as far as the era of Alexander the Great, Khewra is considered the oldest salt mine in the history of mining and second largest salt deposit in the world.

The story of its discovery, goes back to circa 320BC, when some of Alexander's troops stationed in what is now the Punjab Region of Pakistan found their horses licking the stone ground. Out of curiosity, the soldiers copied their equestrian friends, noticing that it tasted rather salty.

Mining salt as a trading commodity did not commence until the Mughal era in the 16th century, and it wasn't until 1872 that the main tunnel was developed by British mining engineer Dr H Warth, on behalf of the British colonial powers. During the early years of British rule, the salt mine churned out around 28,000t to 30,000t per year of salt.

After gaining independence, the Pakistan Mineral Development Corporation managed the mine, which to this day remains the largest source of salt in the country, producing more than 350,000t of halite (salt mineral) per year, at a purity of around 99%. In total, the mine is predicted to have between 82 million tonnes (mt) and 600mt of salt, depending on the estimate. The mine consists of nineteen stories, eleven of which are stationed underground, and has a total length of around 40km. Salt from Khewra is known across the world as Himalayan salt and is most recognisable by its pink colour, although it also exists in red, off-white and colourless. In 2003, Khewra produced 85,000t of Himalayan salt and, at this rate, the reserves are expected to last around another 350 years.

Source: https://www.miningtechnology.

com/features/history-of-mining-oldest-mines/

NATIONAL MINING NEWS

Validity of environmental clearance for mining of minerals expiring on 31-03-2020

The Government of India is mulling extending the validity of key statutory approvals like environment and forestry clearances by three years in respect of mining leases headed for expiry by March 31, 2020. The step, if implemented, will ensure hassle-free auctions of the mines besides facilitating seamless change in ownership. Environment and forest clearances are considered to be major irritants to auction mines. To overcome them, the central government is considering an option to extend the validity of the expiring mining leases by three years. The onus will be on the new owners to renew the extended clearances.

Panel to fix royalty rates for major minerals

The Ministry of Mines received comments and representations from stakeholders with regard to the revision of rates of royalty. This is responded by setting up an 11-member panel including mines secretaries from various states, to examine issues pertaining to the revision of rates of royalty for minerals.

In February, 2018, the mines ministry had set up a study group to revise the rates of royalty and dead rent for minerals. The study group had submitted its report in July last year.

The Mines Ministry has decided to set up an official committee for examining the issues raised by the stakeholders with regard to revision of rates of royalty and dead rent for minerals (other than coal, lignite, sand for stowing and minor minerals

The members of the panel include mines secretaries from the states like Telangana, Chhattisgarh, Jharkhand, Karnataka, Madhya Pradesh and Odisha.

The 11-member committee under the Chairmanship of Mines Additional Secretary will submit the report to the Ministry of Mines after examining the issues raised by stakeholders.

Encouraging FDI in Coal by easing mining rules: hopes of 2020-21

After cabinet's approval India now plans to introduce global tenders for coal mining blocks. This could end state-run Coal India Ltd's near-monopoly of the fuel.

Thus India will lift the restrictions on the use of coal mined domestically and ease bidding rules as the country aims to attract foreign mining companies and reduce imports of the fossil fuel.

Previously, the government restricted the end use of the fuel, with winners of coal block auctions only allowed to use output for specific purposes and not to sell it in the open market. That attracted criticism from the industry which said the rules discouraged bidding.

The auctions are aimed at attracting global miners such as Glencore Plc , BHP Group , Anglo American PLC and Peabody Energy Corp . India, one of the world's biggest coal producers, expects it to remain its main energy source as the fuel helps produce inexpensive electricity, even as many countries are looking to reduce coal use and cut greenhouse gas emissions.

It may be noted that out of 99 coal blocks auctioned since Prime Minister Narendra Modi came to power in 2014, only 29 attracted firm bids. This new rule could hurt prospects for staterun Coal India Ltd. Shares of the company fell as much as 3.6 per cent after the decision of the Ministry of Coal.

India's Coal Sector

Avinash Vadapalli and Kaushal Patel of Praxis Global Alliance reported that India's coal sector is going to change with the new rules. India's coal reserves are estimated at 300 billion tonnes. However, production of coal for 2018-19 was subdued at 730 million tonnes (mt). Coal India, which employs over 3 lakh workers, produced 607million tonnes followed by Singareni Collieries (64 mt). The rest was produced by captive coal producers.

More than 50 percent of India's total primary energy comes from coal, and India added 120GW (giga watt) of coal-based thermal power plant capacity during the past decade. The plant load factor at thermal power plants remains depressed due to the economic slowdown.

To add to the woes, the import bill for coal rose to $26 billion in 2019, from $16 billion in 2014. According to government sources, the total coal

import for 2018-19 stood at 235 mt, of which 130 mt could be substituted by domestic coal, the one with a smaller calorific value which is readily available in India.

What weighs on coal production is industrial and regulatory factors, which raises the import bill and in turn, the trade deficit. India was the second biggest importer of coal in 2019 with a global share of over 16 percent, next only to Japan.

A host of power plants have come up in coastal areas where imported coal is more competitive than Indian coal due to high transportation costs. With the right technology, coal with high calorific value can be suitably tapped with lesser cost per unit of electricity produced.

In general, most plants blend both low calorific Indian coal and the high calorific imported version to improve productivity. Also, coking coal, one of the most important requirements in manufacturing steel, is not abundantly viable in India. So, the entire coal import of India is not substitutable.

India exports small quantities of coal – $100 million as of 2019, with a 0.1 percent global share. Australia (16 percent) remains the leader, followed by Indonesia (15 percent). India's coal export prospects look uninspiring due to surging domestic demand, sub-par competitiveness, need for better technology and lack of quality.

The government has set a target of 1.5 billion tonnes coal production by FY24, of which Coal India's mandate is 1 billion tonne. It has introduced a host of reforms such as removal of end-use requirements for miners, allowing auction of coal bearing areas to private parties for commercial mining in February 2018, which ended the monopoly of Coal India, and clearing 100 percent FDI (foreign direct investment) through the automatic route in commercial coal production for captive use by steel, power and cement, in August 2019.

Before August 2019, 100 percent FDI via the automatic route was allowed in coal and lignite mining for captive consumption by steel, power and cement companies. But the open market sale of coal had not been allowed. These restrictions acted as major FDI barriers.

Currently, 100 percent FDI is allowed in mining for sale in the open market as well as associated infrastructure like washeries, crushing, coal handling and separation. In a separate move, the Environment Ministry gave clearances to 10 coal mining projects with a combined capacity of 160 mtpa (million tonne per annum) and 4 washeries with a combined capacity of 31 mtpa. These reforms are expected to bring in new global players and global technology used for underground mining.

India has been trying to attract global mining giants and improve competitiveness of the sector. But so far, it has met with hard luck. A relatively high supply, squeezed sectoral margins, a move towards cleaner air, thermal power uncertainty and the government's push for solar power are holding back global mining majors like Rio Tinto, BHP Billiton, and Glencore from committing big on India.

Coal gasification is another area the government has been focusing on to help improve productivity and reduce pollution and emissions. This helps check reduction in calorific value of coal between the extraction stage and the time when it reaches power plants.

Indian steel and power companies are expected to bid for new coal blocks, especially when global competitiveness of the Indian steel industry is below par and thermal power is competing with solar energy where the cost of solar cells has dropped significantly leading to competitive unit rates.

Backward integration in the industry is expected to improve reliability and margins for steel and power players. As India tries to jumpstart growth by working around the economic slump, the new reforms are expected to improve efficiency and competitiveness by bringing in more capital, transparency, global players and technology.

In order to minimise the risk and ensure safety of work persons employed in mines, the proactive risk based Safety and Health Management System (SHMS) should gradually replace existing Rule based Safety and Health Management System. To develop an adequate and effective Risk based SHMS, a sound risk analysis process is necessary to address the significant hazards identified by the analysis /assessment with continual improvement in changing scenario.

-D. K. Sahu, CIM & Director General (Officiating), DGMS

INTERNATIONAL MINING NEWS

Queensland's resources sector's 'people first' COVID-19 response

The health and wellbeing of the 372 000 men and women working in the state resources sector is the priority for the Queensland Resources Council (QRC) and its member companies in response to the novel oronavirus (COVID-19).

QRC Chief Executive Ian Macfarlane said the QRC COVID-19 Working Group shared information and responses to the virus with a focus on adhering to the advice from health authorities for all men and women working in the resources sector, their colleagues, their families and their communities.

Globally the industry is now concerned that the COVID-19 situation will be critical for our industry. Companies are already taking steps to slow the spread of the virus.

Sandvik completes the divestment of Sandvik Drilling and Completions

John Williams, Editorial Assistant Global Mining Review reported that Sandvik has completed the previously announced divestment of Sandvik Drilling and Completions (Varel), meaning the operations relating to the oil and gas industry to the private equity firm Blue Water Energy and its co-investor, the privately owned Nixon Energy Investments.

Sandvik will remain a minority owner of 30% of the company and hold a position on the board. The contribution to Sandvik's earnings per share from the minority ownership, reported in associated companies, would have been limited based on 2019 results.

In the results for 4Q19, Sandvik reported a related write-down of net SEK-3.9 billion. In the subsequent period until closing of the deal, changes in net assets imply a negligible capital gain however the realized effect from reversal of the accumulated currency translation in other comprehensive income will have a negative impact of SEK-0.5 billion on the operation result in other operations for the 1Q20. The closing of the divestment results in a positive cash flow impact of about SEK0.7 billion during the 1H20, net of transaction costs.

As of the 2Q20, other operations will not include any active operations. The minority owned company will be incorporated in group activities.

Sandvik introduces AutoMine® for trucks

Sandvik AutoMine® for trucks provides autonomous truck haulage in underground environments and on the surface. It turns the company's mining trucks into unmanned robots.

They help to reduce equipment damage, repair work and add the highest levels of efficiency and fleet utilisation, giving a lower cost per ton. They are scalable for different mining applications and can be supervised from remote locations.

In December 2019 a sneak peek of theproduct was introduced at the Digitalization in Mining event in Brisbane, Australia.

A key requirement for an autonomous ramp haulage application is to enable the capability for trucks to operate autonomously not only underground but also on the surface. With this product release, Sandvik has unlocked this capability for its customers. A core innovation behind the new capability is the smart handover technology that allows trucks to switch from underground to surface navigation mode in real-time. This allows trucks to continue through the ramp portal seamlessly to the surface to complete the dumping cycle.

It also connects directly to Sandvik OptiMine®, enabling efficient production planning and automatic dispatching of tasks to AutoMine for production execution. The progress of production tasks are reported back to OptiMine giving mines real-time visibility of their automated and manual operations and enabling them to make informed decisions on their operation.

Other features include equipment andpeople location tracking, 3D mine visualisation, and predictive analytics to transform data into actionable insights. Integration with 'My Sandvik Productivity' allows mines to keep track of their trucks' condition and know the real-time status of the fleet.

Norway adopts Canada's Towards Sustainable Mining initiative

Jessica Casey, Editorial Assistant Global Mining Review reported that Norsk Bergindustri (Norwegian Mineral Industry), the national mining association in Norway, has recently announced that it will adopt the Towards Sustainable Mining initiative, a corporate social responsibility programme developed by the Mining Association of Canada (MAC) to improve environmental and social practices in the mining industry.

Norsk Bergindustri joins seven other mining associations around the world, the third in Europe and the second in Scandinavia after FinnMin, in adopting TSM, an increasingly internationally recognised standard for responsible mining. Norsk Bergindustri, with MAC's support, will tailor TSM's performance areas to reflect the unique aspects of its domestic mining sector and commits to the implementation over the next five years.

Anita Hall, Secretary General of the Norwegian mining industry has welcome this move. Pierre Gratton, MAC's President and CEO.also encouraged this Exporting Canada's expertise in environmental and social stewardship is one important way that we can contribute to responsible mining practices around the world.

MAC and its members launched TSM in 2004 to enable mining companies to meet society's needs for minerals, metals and energy products in the most socially, economically and environmentally responsible way. Implementation of the program is mandatory for all MAC members' Canadian operations, but many voluntarily apply it to their international sites.

TSM requires mining companies to annually assess their facilities' performance across eight important areas, including energy use and greenhouse gas emissions management, indigenous and community outreach, safety and health and bio-diversity conservation. The results are freely available to the public and are externally verified every three years to confirm what has been reported is accurate.

To ensure the initiative reflects the expectations of civil society and industry stakeholders, it was designed and continues to be shaped by an independent, multi-interest advisory panel. As part of its implementation, Norsk Bergindustri will implement a similar advisory body to provide this valuable oversight function.

Drone for Underground Mine Surveying

Swiss manufacturer Flyability has developed a new drone that's been tested in the Lac des Iles mine in Canada. Inspecting a mine can be a perilous task, with the threat of falling rocks and unsteady ground. Yet sending robots into such spaces has offered limited solutions, with obstacles to signal and sight. But this may all be changing thanks to advancements in drone technology.

Unmanned Aerial Services (UAS) teamed up with drone manufacturer Flyability to explore and check every nook and cranny of the North American Palladium Lac des Iles mine near Thunder Bay, Ontario, Canada. The partners used a drone named Elios, which was able to see into shadow zones regular scans are incapable of, while being sturdy enough to survive collisions in the pitch back caverns of the mine.

Flyability's Elios is different to most drones, as it is surrounded by a cage, making it extremely tolerant of collisions. Made of carbon fibre, this structure can protect the drone against crashes and knocks at up to 15km/h. This makes it perfect for operating in the unpredictable and varied environs of a mine.

Mining asteroids will ultimately benefit humanity
on and off the Earth in a multitude of ways.
- Peter Diamandis

Technical Note

Review of the Mineral Policy 2019 in the the Down to Earth

- Srestha Banerjee

In March 2019, the Indian government has come up with a new National Mineral Policy (NMP) that replaced the earlier 2008 Policy.

The latest mineral policy, which pertains to non-coal and non-fuel minerals, says that a major outcome expected from the policy proposals is to "increase the production of major minerals by 200 per cent in 7 years". The target is tied to the current Government's Make in India initiative and to boost India's economic growth.

While the main outcome envisioned from the new policy is a massive increase of domestic mineral production and reducing trade deficits in the mineral sector in the next 7 years, the development of a new Policy was sought to address many fundamental problems associated with mining activities, than fulfilling the sector's economic mandate.

A direction of the Supreme Court (SC) issued in August 2017 prompted the development of the new NMP. The top Court, while delivering its judgement on "rapacious" mining in Odisha's top mining districts (Keonjhar and Sundargarh), observed that such mining activities has destroyed the environment and forests and caused much misery to local communities (the tribals in the area).

The Court noted that there is no effective check on mining operations nor is there any effective mining policy to guide so. It said that the NMP 2008 "*seems to be only on paper and is not being enforced perhaps due to the involvement of very powerful vested interests or a failure of nerve*".

It was also observed that the 2008 Policy was too dated to deal with the challenges of the day including "rapacious mining in several parts of the country". The Court therefore, asked the Indian government to revisit the NMP of 2008, and "announce a fresh, more effective, meaningful and implementable policy".

The mining sector has long been mired with issues of unscientific mining, poor track records of environmental and social performance, and high instances of illegal activities. The regulatory environment, and capacity and accountability of our authorities, have also sustained this.

Given this, the need to develop a new NMP was a timely proposition. It was a crucial opportunity for the government to come up with a policy document that would guide the mining sector to function with utmost environmental and social responsibility, besides economic considerations. The question is will the NMP 2019 ensure so?

A business-friendly policy

In August 2017, following the SC direction, a 29-member Committee chaired by K Rajeswara Rao, Additional Secretary of the Union Ministry of Mines, was set up by the Ministry to come up with a new NMP.

In one-and-a-half years, the Policy that has finally been developed, is actually one that is a win- win for mining companies and investors. While the document mentions that mining should be environmentally sustainable and equitable, there remain serious questions on how effective this Policy will be to ensure environmental protection, ecological conservation and protect people's rights in the mining areas.

With a focus to ramp up mineral production massively, the new Policy is largely guided by the penchant for 'ease of doing businesses' and attracting investments. A number of mechanisms have been proposed to ensure this.

Creating exclusive mining zones and simplifying clearances

A key proposal that has been introduced in the NMP is the creation of 'Exclusive Mining Zones'. These 'zones' will come with approved, in-principle clearances to "curtail delay in commencement of mining operations".

In-principle clearance is tied to forest land diversion for non-forestry purposes. As most major mining activities involve such land diversion, this will help to open up huge tracks of forest land to multiple companies and investors for mining in one go.

The proposal will also create major loopholes in obtaining successive clearances and permits by

mining companies who will be part of the exclusive mining zone, and also in compliance of clearance and permit conditions. All in all, serious concerns arise about the impact of this proposal on forest ecology, wildlife corridors and forest-dependent communities.

In fact, making the clearance process simpler and faster for the commencement of mining operations has been repeatedly emphasised in the Policy. So much so, that the Policy mentions that in case of delay, there shall be provisions for the project proponent to “generate triggers at higher level” in the online portal of clearances.

The environmental clearance (EC) and forest clearance (FC) process over the past five years has been streamlined and simplified (making it single-window) for the convenience of the project proponents.

But what has not been done is making the clearance process robust and comprehensive to improve the quality of assessment before projects are cleared. Neither has post-clearance monitoring been strengthened. The clearance mechanism continues to suffer from a fragmented approach. The process has largely become a bureaucratic paperwork, with little focus on protecting environment and community.

Instead of repeated emphasis on simplifying clearances for mining projects, the policy should have provided guidance for strengthening it. It should have laid emphasis on synergising the EC and FC processes to remove a fragmented approach while evaluating project impacts.

Guidance should have been provided for developing one comprehensive impact assessment report that evaluates the impact of mining on environment and the forest habitat. This would have helped in strengthening assessment before clearing projects, improved monitoring, and minimised possibilities of controversial decisions.

In all these, the only exception that the Policy makes is for 'critically fragile ecological areas', which it says should be declared as 'no-go' and 'inviolate', to keep out from mining. For all other areas, 'easing development' is the prerogative.

Weak on controlling environmental pollution

Environmental pollution from mining activities is a major problem in most mining areas. This arises from unscientific and rampant mining (and related) activities, poor pollution standards and pollution monitoring, and improper mines management and mine closure practices. Air, water and soil pollution problems in almost all key mining districts of India have severely affected people's health and their livelihood. However, the Policy provides little effective guidance to improve this.

For instance, there is no specific standard on environmental pollution from mining under our umbrella environmental legislations — the Environment (Protection) Act (1986), the Water Act (1974) and the Air Act (1981). Among non-coal minerals, pollution standards have only been developed for iron-ore mining under Environment Protection Rules, 2010. Also, baseline pollution monitoring data in most mining areas is nearly non-existent or extremely poor.

Considering this, the new policy should have given guidance for specifying standards and outlining mechanisms for pollution monitoring in mining areas under the concerned laws. This should have at least been suggested for minerals which are slated to have significant production, and have higher potential to cause environmental pollution.

However, what the Policy only mentions is to use *“renewable sources of energy at mining sites”* to reduce pollution, carbon footprint and operational costs.

The Policy also falls short in providing necessary guidance to ensure effective mine closure practices. A key impediment for proper mine closure in India is that the current financial assurance for this is insufficient. For instance, as per the Mineral Conservation and Development Rules (2017), it is just Rs 3 lakh per hectare for A category mines and 2 lakh per hectare for category B mines, which have been granted on a non-auction basis. These include most mines that are currently operating. This is very low in global comparison, where the costs are at least five to six times higher. However, the Policy does not give any clear guidance to improve this. It only mentions that financial provisions for the costs incurred in mine closure should be given high level of priority by the government.

Key proposals of the National Mineral Policy 2019

- ***Proposes to increase the production of major minerals by 200 per cent in seven years, and reduce trade deficit in mineral sector by 50 per cent in seven years.***
- ***Aims to attract private investment through incentives like financial package, right of first refusal at the time of auction etc. or any other appropriate incentive according to international practices.***
- ***Introduces the concept of Exclusive Mining Zones which will come with in-principle statutory clearances for grant of mining lease.***
- ***Emphasises on simplifying the clearance process and making it time-bound for mineral development and commencement of mining operations.***
- ***Proposes to identify critically fragile ecosystems and declare such areas as "no-go areas"/"inviolate areas".***
- ***Encourages merger and acquisition of mining entities, and transfer of mining leases that have been granted in a transparent manner to ensure seamless supply of ores and scaling up of business.***
- ***Focuses on a long term export-import policy for the mineral sector to provide stability for investing in large scale commercial mining activity.***
- ***Proposes harmonising royalty and all other levies and taxes with mining jurisdiction across the world.***
- ***Emphasises on ensuring welfare of mining-affected people / communities and ensuring rehabilitation and resettlement, by suitable implementation of all relevant Acts / Rules.***
- ***Introduces the concept of Inter-Generational Equity in mineral resource exploitation. Proposes development of an over-arching inter-ministerial body, under the aegis of the Ministry of Mines, to institutionalise mechanisms of sustainable mining. The body will also advise the Government on rates of royalty, dead rent etc.***

Evolution of the MMRD Act

The first amendment of the Mines and Minerals (Regulation and Development) Act (MMRD Act) was made in 1972, enhancing government control through such measures as premature termination of mining leases (ML), lowering of ceiling on individual holdings, for the Central Government to undertake prospecting and mining in certain areas, removal of ceiling on royalty. The next amendment made in 1986 was even more regressive. First schedule minerals for the mining of which, prior approval of the Central Government had to be obtained, were increased from 27 to 38, the Central Government was authorised to reserve areas for Public Sector Undertakings (PSU's) and approval of mining plan was made mandatory. The MCDR was revised in 1988to enable IBM to monitor and regulate all mining activities.

Technical Note

Mining Laws and Regulations in India: Overview

by Shivpriya Nanda, J Sagar Associates

Recent developments in the exploration and extraction of mineral resources

Mining is a major economic activity in India and accounted for 2.3% of the country's gross value added (GVA) for the first quarter of 2017-2018. The sector provides the basic raw materials required by several manufacturing and infrastructure industries in the country.

India produces 95 minerals, including:

- Four fuel-related minerals.
- Ten metallic minerals.
- 23 non-metallic minerals.
- Three atomic minerals.
- 55 minor minerals (including building and other minerals).

Globally, India is ranked as one of the leading producers of valuable minerals such as chromite, iron ore, coal and bauxite.

The mining sector in India is highly regulated and the legal framework has undergone significant changes in the past three years, the result of which is a more transparent and efficient regime.

Some of the recent developments in the sector include:

- **The Mineral Conservation and Development (Amendment) Rules 2018.** These rules aim to ensure that mineral production is not affected by the expiry of existing mining leases. The rules require general exploration (G2) to be carried out by 1 April 2019 for all mining leases (other than coal, lignite and atomic minerals) used for non-captive purposes expiring in March 2020. The amendment also lays down timelines for the implementation of exploration plans to ensure seamless transition on the expiry of existing mining leases.
- **The Mineral (Auction) Amendment Rules 2017.** These rules were notified on 30 November 2017 to expedite the auction process for major minerals (other than coal, petroleum and natural gas). The amended rules require flexibility in block allocations in the second round, rather than waiting until the fourth round as was usual under the old rules, which had resulted in a significant number of blocks being annulled. In addition, the net-worth requirement for bidders has also been relaxed.
- **Coal Mines (Special Provisions) Act 2015 (CMSPA).** In an order dated 27 February 2018, the central government approved the methodology under the CMSPA for allocation of coal mines by auction and allotment of coal for sale. The CMSPA envisages an ascending forward auction where the bid parameters are the price offer in INR per tonne to be paid to the state government on coal production. There will be no restriction on the sale and/or utilisation of coal from coal mines. This is one of the most significant reforms in the coal sector since the nationalisation of the sector in 1973 and has the effect of opening up commercial coal mining to the private sector.
- **Pro Active and Responsive facilitation by Interactive and Virtuous Environmental Singlewindow Hub (PARIVESH).** PARIVESH is a single-window integrated environmental management system, launched by the Ministry of Environment, Forest and Climate Change as part of the wider "Digital India" governmental initiative. PARIVESH seeks to automate the entire process of submitting and tracking applications for various types of clearances (such as environmental, forest, wildlife and coastal regulation zone clearances) submitted by project proponents to the MOEFCC, as well as to the State Level Environmental Impact Assessment Authorities.
- **Ban on illegal mining in the State of Goa.** In February 2018, the Supreme Court of India set aside second renewals of mining leases granted by the State of Goa that were issued in violation of the applicable law. The Court directed that mining operations in the State be resumed only after fresh mining leases (not fresh renewals or other renewals) and fresh environmental clearances were granted in accordance with the provisions of the Mines & Minerals (Development and Regulation) Act 1957.

Regulatory framework for the exploration and extraction of mineral resources

India's mineral and mining sector operates under a federal structure where the powers and responsibilities for regulation of the sector are divided between the central government and the respective State governments in accordance with the Union List, State List and the Concurrent List contained in the Seventh Schedule of the Constitution of India.

Under the Constitution, administration of the mining sector in India is the collective responsibility of the central government and the State governments. The central government has the power under entry 54 of the Union List to regulate mines and mineral development to the extent that such regulation is declared by the Parliament to be in public interest. The State governments' power to regulate mines and mineral development under entry 23 of the State List is subject to the power of the central government.

Further to its powers under entry 54 of the Union List, the central government has framed the Mines & Minerals (Development and Regulation) Act 1957 (MMDR Act), which is the principal legislation governing the mineral sector (other than petroleum and natural gas) in India.

The MMDR Act sets out the legal framework for the development of all minerals and for the regulation of mines. Under the MMDR Act, minerals are classified into minor minerals and major minerals. Minor minerals include building stones, gravel, ordinary clay, ordinary sand and other minerals that the central government declares to be a minor mineral. Minerals that cannot be categorised as minor minerals are considered to be major minerals and include coal, manganese ore and iron ore, as well as other minerals used for industrial purposes.

The MMDR Act underwent significant changes under the Mines and Minerals (Development and Regulation) Amendment Act 2015. These changes were brought about primarily to establish a transparent and non-discretionary regime for the grant of mineral concessions. The MMDR Act was further amended in 2016 to allow the transfer of mining leases that are granted other than through auction and used for captive consumption purposes.

The MMDR Act sets out the legal framework for the mining sector (other than petroleum and natural gas), along with the following rules and regulations:

- The Mineral Concession Rules 1960 (MC Rules). These rules outline the framework for, among other things, granting concessions, rejecting applications, maintaining accounts and the submission of reports to the State governments.
- The Mineral Conservation and Development Rules 2017 (MCD Rules). These rules prescribe the conditions for ensuring that mining is undertaken on a scientific basis while conserving the environment.
- The Mineral (Auction) Rules 2015 (Auction Rules). These rules provide the framework for granting concessions for major minerals through an online electronic auction process.
- The Mines Act 1952 (Mines Act). This Act defines the requirements for labour safety and working conditions in mines and contains provisions for the management and conduct of mining operations.
- The Mines Rules 1955 (Mines Rules). These rules lay down the framework for ensuring the welfare, health and safety of labourers employed in mines.
- The Offshore Areas Mineral (Development and Regulation) Act 2002 (OAMDR Act). This Act regulates the development of mineral resources in offshore areas, including territorial waters, the continental shelf, exclusive economic zones and other Indian maritime zones.
- The Offshore Areas Mineral Concession Rules 2006 (OAMDR Rules). These rules lay down the process for the grant and renewal of concessions in respect of mineral resources in offshore areas.
- Mines and Minerals (Contribution to District Mineral Foundation) Rules 2015. These rules specify the amount to be paid by a holder of a mining lease or prospecting licence/mining lease to the relevant District Mineral Foundation.
- Coal Block Allocation Rules 2017 (Coal Block Allocation Rules). These rules prescribe the terms and conditions for auction by competitive bidding for the allotment of coal blocks.

- Foreign Direct Investment Policy, as amended from time to time (FDI Policy). The FDI Policy is a framework for foreign direct investment in different sectors in India, including the mining sector. It is released by the Department of Industrial Policy and Promotion, Ministry of Commerce & Industry, Government of India and may be updated every year to reflect regulatory changes.

The exploration and exploitation of petroleum and natural gas are primarily governed by the:

- Oilfields (Regulation and Development) Act 1948.
- Petroleum and Natural Gas Rules 1959

Regulatory Authorities

The regulatory authorities relevant to mining are:

- State governments. Each State government has the power to grant mineral concessions and collect royalties, dead rent and fees within the State in accordance with the provisions of MMDR Act.
    - Ministry of Mines (MoM). The MoM is the primary body responsible for administration of mining in India. It is responsible for:
        - o survey and exploration of all minerals (other than coal, natural gases and petroleum);
        - o mining and metallurgy of non-ferrous metals; and
        - o administration of the MMDR Act.
- Indian Bureau of Mines (IBM). The IBM is a subordinate office of the MoM and is mainly responsible for regulating and ensuring systematic development of mining in India. It is engaged in the promotion, conservation and scientific development of mineral resources, while ensuring protection of the environment.
- Ministry of Coal (MoC). The MoC administers the exploration of coal in India and is responsible for ensuring that exploration activities are carried out in a sustainable manner. It is also engaged in the development of the infrastructure necessary for prompt coal supplies to meet other sectors' demands.
- Ministry of Petroleum and Natural Gas (MoPN). The MoPN was established under the Petroleum and Natural Gas Regulatory Board Act 2006 to govern the exploration and exploitation of petroleum resources, including natural gas. It oversees the production, supply, distribution, marketing and pricing of petroleum products and natural gas. It is also engaged in the planning, development and control of, and assistance to, all industries dealt with by the MoPN.
- Ministry of Environment, Forest and Climate Change (MOEFCC). The MoEFCC is the agency responsible for the planning and implementation of India's environmental and forestry policies and programmes. A project proponent must obtain environmental clearance from the MoEFCC to undertake a mining project in India

What are the key features of the leases, licences or concessions that are issued under the regulatory regime? Can these rights be leased by the right-holder?

The following concessions are issued by the relevant State government for the purpose of exploration and mining of minerals (other than coal, lignite and atomic minerals) under the MMDR Act:

- **Reconnaissance permit and Non-Exclusive Reconnaissance Permit (NERP).** This permit is granted for the purpose of undertaking preliminary prospecting of a mineral through regional, aerial, geophysical or geochemical surveys and geological mapping. The holder cannot automatically claim the grant of any prospecting licence or mining lease.
- **Prospecting licence.** A prospecting licence is a concession to undertake prospecting operations, including exploring, locating and proving mineral deposits.
- **Composite (prospecting/mining) licence.** The composite licence is a two-stage concession where prospecting is followed by mining operations.
- **Mining lease.** This is a lease allowing mining operations within the boundaries of the State. It allows for the grant of sub-leases for mining operations.

Under the Coal Block Allocation Rules, the central government can select a company engaged in the production of iron and steel, generation of power, washing of coal or similar operations through a process of competitive bidding when granting a mineral concession for an area containing coal or lignite. The relevant State government must then grant the concession to the company selected by the central government.

Similarly, the central government can formulate rules for regulating the grant of mineral concessions in respect of atomic minerals, and the State government must then grant the concession in accordance with the rules formulated by the central government.

Lease/licence/concession term

Reconnaissance permits (including NERPs) and prospecting licences (including prospecting and composite licences) can be granted for any mineral for a maximum period of three years. There is no provision for the extension of a reconnaissance permit. However, a prospecting licence can be renewed by the relevant State government for a period not exceeding five years. Renewals of prospecting licences granted in respect of coal, lignite and atomic minerals are subject to approval by the central government.

Mining leases for minerals other than coal, lignite and atomic minerals are granted for a period of 50 years. On the expiry of the lease period, the lease must be put up for auction under the procedure specified by the MMDR Act. If the mineral is used for captive consumption, the holder of the lease has the right of first refusal at the auction after expiry of the lease period.

A mining lease in respect of coal and lignite is granted for a minimum period of 20 years and a maximum period of 30 years. Renewal is subject to approval by the central government. On the expiry of the lease period, the lease can be put up for auction and allotted under the procedure specified in the MMDR Act and the Coal Block Allocation Rules.

After consultation with the State government, the central government can terminate a concession granted in respect of any mineral other than a minor mineral at any time, if it is in the interests of:

- Regulation of mines and mineral development.
- Preservation of the natural environment.
- Prevention of pollution.
- Other purposes as the central government deems fit.

Similarly, the State government can prematurely terminate a concession granted in respect of a minor mineral for similar reasons.

In addition, a mining lease expires if the holder either:

- Does not undertake mining operations for a period of two years after the date of execution of the lease.
- Having commenced mining operations, discontinues operations for a period of two years.

Fees

NERPs and reconnaissance permits. The online application for a NERP must be accompanied by a fee of INR1000 per square kilometre. If the application is rejected, the fee is refunded to the applicant less a 10% deduction.

An application for reconnaissance permit (other than NERP) must be accompanied by a non-refundable fee of INR5 per square kilometre. The holder of the reconnaissance permit must also pay an annual permit fee fixed by the relevant State government of between INR5 and INR20 per square kilometre of land held under the permit.

Prospecting licence. An application for a prospecting licence (other than composite licence) and its renewal must be accompanied by a non-refundable fee of INR250 for the first square kilometre or any part thereof, and INR50 for every additional square kilometre of the area over which the prospecting licence is applied for. In addition, the holder of the prospecting licence must also pay an annual prospecting fee fixed by the relevant State government of between INR1 and INR10 per hectare of land covered by the licence.

Composite licence. The preferred bidder must pay to the relevant State government an amount of 0.25% of the value of the estimated resources as performance security before the issue of a composite licence. For a subsequent grant of a mining lease, the holder of the prospecting licence must follow the procedure and make payments as for a mining lease (see below).

Mining lease. For mining leases for minerals

(other than minor minerals, coal, lignite and atomic minerals) granted by the relevant State government through auction, an upfront payment equivalent to 0.5% of the value of the estimated resources must be made by the preferred bidder. The upfront payment must be made to the relevant State government in three instalments of 10%, 10% and 80%, and can be adjusted on the commencement of production of minerals. In addition, the preferred bidder must also provide a performance security of an amount of 0.5% of the value of the estimated resources, which is adjusted every five years so that it corresponds to 0.5% of the reassessed value of the estimated resources.

An application for a mining lease for minor minerals must be accompanied by a non-refundable fee of INR250 and deposit of INR1,000 to meet the preliminary expenses in connection with the grant. A further security deposit of INR10,000 must be made on the grant of the mining lease.

Liability

Reconnaissance permit. The primary obligations of the holder of a reconnaissance permit, including a NERP, are:

- Progressively relinquishing the area granted under the permit.
- Adhering to the minimum expenditure commitment and specific physical targets specified in the permit grant, failing which the permit may be cancelled.
- Making available all data collected during the reconnaissance operations to the Geological Survey of India, Indian Bureau of Mines and State government.
- Maintaining an accurate and faithful account of all the expenses incurred on the reconnaissance operations and allowing every authorised officer to examine accounts and other relevant information it maintains.
- Submitting a report of the work done during the period of the reconnaissance permit to the State government, covering the work and all other relevant information obtained in the course of reconnaissance.

Prospecting licence. The primary obligations of a prospecting licensee include:

- Reporting the discovery of any mineral not specified in the licence to the relevant State government within 60 days of discovery.
- Transferring the licence only with previous approval from the State government.
- Paying wages as prescribed in the Minimum Wages Act 1948.
- Planting not less than twice the number of trees destroyed by prospecting operations and trying and restore other flora to the extent possible.
- Paying to the occupier of the surface of the land any compensation that becomes payable under the rules.

Composite licence. A composite licence holder must observe the obligations imposed on the holder of a prospecting licence, followed by the obligations of the holder of a mining lease, if a mining lease is issued.

Mining lease. The holder of a mining lease must observe the following conditions:

- Report to the relevant State government the discovery of any mineral in the leased area that is not specified in the lease within 60 days of discovery.
- Commence mining operations within one year from the date of execution of the lease and ensure that such operations are conducted in a proper manner.
- Erect, maintain and keep in good repair boundary marks and pillars necessary to indicate the demarcation shown in the plan annexed to the lease.
- Keep accurate accounts showing the quantity and other particulars of all minerals obtained and dispatched from the mine and allow any authorised officer to examine the accounts, plans and records the lease holder maintains.
- Give employment preference to tribal persons and other persons who become displaced as a result of mining operations.
- Pay to the occupier of the surface of the land any compensation that becomes payable under the applicable rules.

Restrictions

Eligibility. Concessions under the MMDR Act are only granted to Indian nationals or to Indian companies, as defined under clause (20) of

section 2 of the Companies Act 2013. For the purposes of the MMDR Act, persons are deemed to be an Indian national if they are citizens of India or, in the case of a firm or association of individuals (other than companies), if all the members of the firm or members of the association are citizens of India.

Central/State approval. The grant of a concession in respect of coal and lignite is subject to approval by the central government. For the grant of a mining lease, the State government must be satisfied that there is evidence for the mineral deposit, and there must be a duly approved mining plan for the area for which the application is made.

Area restrictions. The MMDR Act also sets out restrictions on the maximum area for which concessions can be granted in respect of any mineral or group of associated minerals.

Transfer restrictions. The transfer of mineral concessions is only allowed for:

- Concessions granted through auction.
- Mining leases granted other than through auction but used for captive consumption.

In addition, a mining lease and a composite licence can only be transferred with the prior approval of the State government.

How are such leases, licences or concessions awarded?

The process involved in the issue of concessions for the purpose of exploration and mining of minerals (other than coal, lignite and atomic minerals) under the MMDR Act is as follows:

- **NERP.** Under the provisions of the Non-exclusive Reconnaissance Permit Rules 2015, an interested applicant must submit an online application to the relevant State government in a prescribed format, accompanied by the prescribed fee. The State government grants the NERP within 30 days from the date of filing of a successful application. The State government also specifies the validity period of the NERP at the time of grant.
- **Mining lease.** Under the Auction Rules, the relevant State government grants mining lease through an online electronic auction process where bidders must quote a percentage of the value of minerals to be recovered that they are willing to share with the State government. The bidder who submits the highest final price offer is granted the mining lease on meeting the following further requirements:
  - submission of timely instalments;
  - showing performance security;
  - obtaining various approvals; and
  - satisfaction of prescribed eligibility conditions.
- **Composite licence.** A composite licence is also granted through a similar online auction process as for the grant of a mining lease. The concessionaire must complete the prescribed level of prospecting within three years, which can be further extended by two years. Thereafter, for the grant of a mining lease, holders of a prospecting licence must first establish economically extractable mineral content in the area, after which they must follow similar procedures and make payments as for a mining lease (see above).

What are the main ongoing requirements for environmental protection?

The MMDR Act empowers the central government to issue directions to the State governments to ensure sustainable development and exploitation of minerals to reduce adverse air, ground, water and ambient noise impacts.

Under the Environment Impact Assessment Notification 2006, as amended, all mines, irrespective of their size and nature of mineral (major and minor), operating in the country must obtain an Environmental Clearance (EC). Mines operating without an EC are considered to be illegal mines.

The MOEFCC has the authority to grant ECs in respect of:

- Asbestos mining, irrespective of mining area.
- Coal mining for mining lease area of more than 150 hectares.
- Non-coal mining for mining lease area of more than 100 hectares.
- The Central Government has delegated the

authority to grant ECs to the State Environment Impact Assessment Authority at the State or Union territory level in respect of:

- Coal mining for mining lease area of less than or equal to 100 hectares.
- Non-coal mining for mining lease area of less than or equal to 150 hectares.
- Individual mining lease for mining area between five and 25 hectares.
- Mining lease covering cluster of areas that is between five and 25 hectares with any individual lease size more than five hectares.
- The District Environment Impact Assessment Authority at the District level is the delegated authority that grants ECs in respect of:
- Individual mining leases of less than five hectares.
- Mining leases covering clusters of areas that are either:
  - up to five hectares.
  - between five hectares and 25 hectares with individual lease sizes less than five hectares.

Some of the key environmental clearances required for mining operations include:

- Clearance under the Environment Protection Act 1986 and Environment Protection Rules 1986 in accordance with the Environment Impact Assessment Notification 2006, as amended from time to time.
- Consent to undertake mining in forest lands covered under the Forest Conservation Act 1980.
- Clearance from the relevant State Pollution Control Board under the:
  - Water (Prevention and Control of Pollution) Act 1974;
  - Air (Prevention and Control of Pollution) Act 1981;
  - Hazardous and Other Wastes (Management and Transboundary Movement) Rules 2016;
  - Solid Waste Management Rule 2016;
  - Noise Pollution (Regulation and Control) Rules 2000;
  - Construction and Demolition Waste Management Rules 2016; and
  - Ozone Depleting Substances (Regulation) Rules 2000.

The processing of environmental clearance applications has become integrated with the launch of PARIVESH. Accordingly, a project proponent is only required to submit an application to the PARIVESH website (https://parivesh.nic.in) to obtain the different environmental and forest clearances above.

What are the main ongoing requirements for compliance with health and safety regulations?

The provisions relating to labour welfare and health safety in mines are contained in the Mines Act and Mines Rules, which contain detailed provisions for, among other things:

- Working conditions.
- Sanitation provisions.
- Working hours.
- Penalties for non-compliance.

Employers must also ensure compliance with the requirements of the following subordinate legislation under the Mines Act:

- The Coal Mines Regulation 1957.
- The Metalliferous Mines Regulation 1961.
- The Mines Vocational Rules 1966.
- The Oil Mines Regulations 1984.
- The Mines Rescue Rules 1985.
- Mines Creche Rules 1966.

The Directorate General of Mines Safety is the regulatory agency overseeing compliance with mining safety laws and ensuring the safety, health and welfare of persons employed in mines.

What payments, such as taxes or royalties, are payable by interest holders to the government?

Direct tax

Income tax. Mineral concessions are only granted to Indian entities. Under the provisions of the Income Tax Act 1961, corporate income tax at 30%, or minimum alternate tax at 18.5%, whichever is higher, is applicable to entities

incorporated in India or with their management and control in India. The tax rate is topped up with applicable surcharges and cess.

An Indian entity can claim deduction of one tenth of revenue expenditure incurred in the year of commencement of commercial production, and for four prior years for operations relating to prospecting or the extraction or production of minerals. This deduction can be claimed for a period of ten years, beginning from the year in which commercial production starts. It is limited to the extent of income in each of the respective years.

A seller of coal, lignite or iron ore must also collect tax at 1% of the consideration received, and deposit this with the government.

Indirect tax

Goods and services tax (GST). GST at 18% is payable on royalties paid to State governments for the grant of mining leases. It is payable by the lessee under a reverse charge mechanism. GST paid under the reverse charge mechanism is eligible as an input tax credit (ITC) in the hands of the lessee. There are also ITCs for other expenses incurred in the course of business. Refunds of unused ITCs are available in respect of zero-rated supply (exports) or where ITC is accumulated due to a rate of tax on inputs that is higher than the tax on the output supply. However, such ITC refunds are not available if export duty is payable on the goods exported out of India. *(See Question 12.)*

Small mining leaseholders whose aggregate turnover does not exceed INR7.5 million in the preceding financial year are eligible to pay GST under the composition scheme. Royalties paid under the MMDR Act are not included in GST and are an additional cost for the business entity.

Royalties

Royalties. Holders of a mining lease must pay royalties to the relevant State government for any mineral removed from the leased area or consumed by them or their managers, employees, contractors or sub-lessees, at the rate specified in the Schedule 2 of MMDR Act.

Dead rent. A holder of a mining lease must pay dead rent every year to the relevant State government, at a rate specified in Schedule 3 of the MMDR Act. If mining lease holders become liable to pay royalties for the removal or consumption of any mineral, they are liable to pay either the prescribed royalty or the dead rent, whichever is higher.

National Mineral Exploration Trust. The National Mineral Exploration Trust is a non-profit body established by the central government for receiving funds for regional and detailed exploration activities. A holder of a mining lease or a composite prospecting/mining lease must pay the National Mineral Exploration Trust a sum equivalent to 2% of the royalties paid under Schedule 2 of the MMDR Act.

District Mineral Foundation. The District Mineral Foundation is a non-profit body established by the State governments to work in the interests of persons and areas affected by mining operations. A holder of a mining lease or a prospecting licence/mining lease must pay a percentage of up to one-third of the royalties, as prescribed by the central government, to the District Mineral Foundation of the district in which the mining operations are carried out.

What taxes and duties apply on the import and export of mineral resources?

Under the Customs Duty Act 1962, customs duty is levied on the import and export of goods into India based on the value of the goods. Any good imported into India is chargeable to customs duties at rates specified in the Customs Tariff Act 1975.

Under the Goods and Services Tax regime, supplies of goods imported into India across the Indian customs frontier are treated as supplies of goods in the course of inter-state trade or commerce. Accordingly, integrated goods and services tax (IGST) is levied on imported goods.

Therefore, goods imported into India are liable to:

- Basic customs duty.
- Social welfare surcharge.
- IGST.

In certain cases where there is a shortfall in the domestic supply, the government may also impose export duties to regulate the supply of minerals.

The Regulatory Authorities

Ministry of Mines
Address. ShastriBhawan, Dr Rajendra Prasad Road, New Delhi, 110 001
T +91 11 233 88905
W http://mines.gov.in
Main responsibilities. The Ministry of Mines is the primary body responsible for the surveying and exploration of all minerals (other than coal, natural gases and petroleum) and for the administration of mining in India.

Indian Bureau of Mines
Address. 2nd Floor, Indira Bhawan, Civil Lines, Nagpur, 440001
T +91 712 256 1110
W http://ibm.nic.in
Main responsibilities. The Indian Bureau of Mines is mainly responsible for regulating and ensuring systematic development of mining in India and is engaged in promotion, conservation, and scientific development of mineral resources and the protection of the environment.

Ministry of Coal
Address. ShastriBhawan, Dr Rajendra Prasad Road, New Delhi, 110 001
T +91 11 230 70522
W https://coal.nic.in
Main responsibilities. The Ministry of Coal monitors the exploration of coal in India. It administers exploration activities and is engaged in the development of the necessary infrastructure for the prompt distribution of coal.

Ministry of Petroleum and Natural Gas
Address. ShastriBhawan, Dr Rajendra Prasad Road, New Delhi,110 001
T +91 11 233 87404
W http://petroleum.nic.in

Ranking of countries producing thirteen major minerals in different years

	Mineral	Main producing countries					
		I		II		III	
1	Gold(2018)	China	414 te	Australia	319 te	Russia	297 te
2	Silver (2019)	Mexico	6300 te	Peru	3800 te	China	3600 te
3	Zinc (2019)	China	4300 te	Peru	1400te	Australia	1300 te
4	Titanium (2028)	China	107 Mte	Russia		Japan	
5	Titanium Sponge (2016)	China	60 Mte	Japan	54 mte	Russia	48Mte
6	Lead(2016)	China	2600Mte	Australia	573Mte	USA	346 Mte
7	Chromium (2017)	South Africa	15 Mte	Kazagistan	5.4 Mte	India	3.2 Mte
8	Copper (2019)	Chile	5.6 Mte	Peru	2.4 Mte	China	1.6 Mte
9	Tungsten (2017)	China	79Mte	Vietnam	7.2 Mte	Russia	3.1 Mte
10	Nickel(2018)	Indonesia	0.8 Mte	Philippine	0.34 Mte	New Caledonia	0.21 Mte
11	Iron ore (2019)	Australia	930 Me	Brazil	480 Mte	China	210 MTe
12	Aluminum (2018)	China	33 Mte	India	3.7 Mte	Russia	3.7 Mte
13	Mercury (2016)	China	4000Te	Mexico	300 Te	Kyrgistan	40Mte

Technical Note

Environment Protection in Mining operation with Contribution in CSR, DMF and Peripheral Development

By Sri G S Khuntia[2]

Mining & Agriculture are oldest Profession known to Human Beings; Mining lies in foundation of Civilization. Kautilya - in 4th century in his Arthshastra stated “Mines are Treasury of a Nation”. Ancient Mines workings as old as 4th century BC even today serve as -” Foot prints on sand of time are proof that Mines are of huge economic importance.

Steel is one of the most important products in the modern world and forms the backbone to any industrial economy. India being one of the fastest growing economies in the world, planning for 5 Trillion Dollars economy (3rd in World), It is not possible without steel production having extensive application right from construction, housing, infrastructure, power, aerospace and industrial machinery to consumer products, the sector is of strategic importance to the country. (linked to GDP of Country), plans for Crude Steel-300 MTPA (110 MT now), needing Iron ore-4 50 MTPA (160 MT now), Coking Coal—180 MT (Low ash-9%), Investment-10 Lakh Crores In time in 12 years by, Milestone years-2030.

This ambitious plan is possible by matching expansion in mining operations only by Infrastructure and logistic supports in Railways, Roadways and Power generation, Intensive Mineral beneficiation for quality upgradation with Cost reduction measures with High productivity measure, with international cost competitiveness. For this Mining Operations with Environment laws framing & practice, the New mineral Legislation-2015 (MMRD) seeks following -complete and holistic reform in the mining sector with provisions to address issues relating to sustainable mining/ local area development, /benefit sharing mechanism to the people affected by mining operations by new Legislation enforcing DMF /NMET /Peripheral development in Mining area by providing incentives for encouraging good mining practices & good technology absorption.

Indian mines Legislation were very old, as old as - 1901, more than 119 years old enactments by GOI. Indian Mining legislation include:

- Mines acts-1901 (119 years enforcement)
- Mines Acts-1923
- Mines acts-1952
- Mysore Gold mines Regulation-1953
- MMR—1926
- MMRD-1947 & MC Rules 1960
- CMR-1957
- MMR-1961

The “Mining Scam /Coal scam /Justice MB Saha Commission on Illegal Mining operations & closures in 2004-10” is a clear indications that compliance of statutory provisions by authorities was not foolproof/ proper, due to which Mining Industries/ Metal Industries/ Societies has lost revenue badly, some unscrupulous mine operators operated mines without following statutory provisions & there were wide spread environmental degradation of air, water, and soil environment that is throwing mankind/ planet in danger.

A point to note is a large number of Statutory clearances are required prior to start of a mine/mining operations. These include preparation of EMP/EIA, State pollution control measures, Forestry & MOEF clearances in Stage-1 &2, Mining Plan preparation& approval by IBM for 20 years' operation &Mining Scheme for 5 years, Mine Closure Plans, DGMS approval of Regulation 106(2) B for Mechanized Mines Operations, OHS Provisions in Mines. Failure to comply with these regulatory requirements result in closing of Mining Operation/ EXPORT Suspensions etc. These were unheard in PSU mines like NMDC/ SAIL /even in CIL /Big Corporates like TATA STEEL, a handful of private Mines operators brought DISREPUTE to Industry.

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[2]*Former Executive Director (Operation), SAIL / Director, NMDC Ltd, Hyderabad & Mining Advisor to Essar Steel Orissa / JINDALS / Former Council member of IEI, Kolkatta / currently Director, IIMCS, Bhubaneswar / Independent Director, OMC Ltd, Bhubaneswar / VP-SGAT /Chairman, MGMI, Bhubaneswar, MEMBER OF BOARD OF DIRECTORS OF OMC LTD also, MEMBER OF CSR COMMITTEE OF BOARD.*

A very strict vigilance & statutory enforcement is necessary in Private mines of India for successful, scientific expansion of Mining industry.

Regarding CSR, a good mining company must take up different Socio-Economic Development works through its well defined CSR Policy. Such works include: extending financial assistance for adoption of village, Art and Culture, fair and exhibition, donation, drinking water, educational ventures, games and sport, health, infrastructure, roads, building, bore-well tube well, ponds, etc. OMC is taking up activities for the benefit of the people around the mining impacted areas, in State of Odisha. The company is addressing eradicating hunger, poverty and malnutrition, promoting preventive health care, promoting education, and employment enhancing vocation skills among children, women, elderly, promoting gender equality, empowering women, setting up homes and hostels for women and orphans, setting up old age homes, ensuring environmental sustainability, ecological balance, protection of national heritage, art and culture, promote rural sports, relief and welfare of the scheduled castes and scheduled tribes and other backward classes.

Provision & practice of CSR have given rich dividends in Foreign Countries in mining operations by MNC. In India also CSR provisions at a rate of minimum 2% of net profit & a maximum of 5% by SAIL is well appreciated. SAIL, NMDC, CIL, TATA STEEL provided CSR as “Welfare Facilities” for people affected by mining operations. They have provided a large no of schools, Hospitals, transport from Mines to nearest town, water supply in pipes, medical camps, employment of local people in jobs in their mines/Industry establishments. Now royalty is paid to State Govt is @15% of Advoldrum, DMF (District Mineral Fund) at 30% of royalty & NMET (National mineral Exploration Trust) @ of 2% of royalty. For this DMF & NMET Rules have been framed in ODISHA wef 17/9/2015 (enactment date-12/1/2015 by Ordinance).Royalty /DMF /NMET collection in ODISHA is now about Rs 11000/ Crores INR annually. It was only 500-600 Cr INR annually prior to these rules enforcement. It is expected that “Environment Protections” of neighboring area & smooth operation of Mines & its future expansion plans will be done smoothly by above provisions. Industries/Mines should come forward & enforce this provision willfully by integrating with production process. Let us hope housing, school education, Income generating skills and skill upgradation, medical cares, afforestation, water supply, jobs creations for local people etc will be taken care of in a big way.

OMC Ltd has spent 29.38 crores on CSR Activities in the financial year 2017-18 for the following project activities

1. Eradicating hunger, poverty and mal-nutrition, promoting preventive health care and sanitation and making available safe drinking water.
2. Promoting education including special education and employment enhancing vocation skill especially among children, women, elderly and the differently-abled and livelihoods enhancement projects.
3. Promoting gender equality empowering women, setting up homes and hostels for women and orphans, setting up old age homes, day care centers and such other facilities for senior citizens and measures for reducing inequalities faced by socially and economically backward groups.
4. Ensuring environmental sustainability, ecological balance, protection of flora and fauna, animal welfare, ago forestry, conservation of natural resources and maintaining quality of soil, air and water;
5. Protection of national heritage, art and culture including restoration of buildings and sites of historical importance and works of art; setting up public libraries; promotion and development of traditional arts and handicrafts;
6. Measures for the benefit of armed forces veterans, war widows and their dependents;
7. Training to promote rural sports, nationally recognized sports, Paralympics sports and Olympic sports;
8. Contribution to the Prime Minister's National Relief Fund or any other fund set up by the Central Government for socio-economic development and relief and welfare of the Scheduled Caste, the Scheduled Tribes, other backward classes, minorities and women;
9. Contribution or funds provided to technology incubators located within academic institutions which are approved by the Central Government;
10. Rural development projects.

MINERAL AUCTION RULE

MINISTRY OF MINES

NOTIFICATION

New Delhi, 20th May, 2015

G.S.R. 406(E).—In exercise of the powers conferred by section 13 of the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957), the Central Government hereby makes the following rules, namely:—

CHAPTER I

PRELIMINARY

1. **Short title and commencement.**- (1) These rules may be called the Mineral (Auction) Rules, 2015.

(2) They shall come into force on the date of their publication in the Official Gazette.

2. **Definitions.**- (1) In these rules, unless the context otherwise requires, -

(a) "**Act**" means the Mines and Minerals (Development and Regulation) Act, 1957 (67 of 1957);

(b) "**Composite Licence**" means prospecting licence-cum-mining lease granted under rule 18;

(c) "**Mine Development and Production Agreement**" means the agreement referred to in sub-rule (4) of rule 10 or sub-rule (8) of rule 18;

(d) "**preferred bidder**" means the bidder referred to in sub-clause (iii) of clause (b) of sub-rule (4) of rule 9;

(e) "**qualified bidders**" means the bidder referred to in sub-clause (iv) of clause (a) of sub-rule (4) of rule 9;

(f) "**reserve price**" means the minimum percentage of value of mineral despatched as referred to in sub-rule (1) of rule 8;

(g) "**section**" means section of the Act;

(h) "**Schedule**" means a Schedule appended to these rules;

(i) "**successful bidder**" means the bidder as referred to in sub-rule (3) of rule 10 or sub-rule (2) of rule 18;

(j) "**technically qualified bidders**" means the bidder as referred to in sub-clause (ii) of clause (a) of sub-rule (4) of rule 9;

(k) "**tender document**" means the tender document issued by a State Government for conduct of an auction referred to in sub-rule (2) of rule 9;

(l) "**upfront payment**" means the payment referred to in sub-rule (1) of rule 11;

(m) "**value of estimated resources**" means an amount equal to the product of, -

(i) the estimated quantity of mineral resources for which the mineral block is being auctioned, expressed in metric tonne; and

(ii) the average price per metric tonne of such mineral as published by Indian Bureau of Mines for the relevant State for a period of twelve months immediately preceding the month of computation of the Value of Estimated Resources; and

(n) "**value of mineral despatched**" shall have the meaning specified in sub-rule (2) of rule 8.

(2) The words and expressions used in these rules but not defined herein shall have the same meaning as assigned to them in the Act or rules made thereunder.

3. **Application.-** These rules shall apply to all minerals, except minerals notified as minor minerals specified in clause (e) of section 3 and minerals specified in Part A and Part B of the First Schedule to the Act.

4. **Grant of concession.-** (1) Where mineral contents of an area has been established as specified in the Minerals (Evidence of Mineral Contents) Rules, 2015, mining lease shall be granted in the manner specified under Chapter II with respect to any notified minerals referred to in sub-section (3) of section 10B or with respect to any minerals other than notified minerals referred to in sub-section (2) of section 11.

(2) A Composite Licence with respect to an area where requirements specified in rule 7 of the Minerals (Evidence of Mineral Contents) Rules, 2015 have been satisfied, shall be granted in the manner specified under Chapter III with respect to any notified minerals referred to in sub-section (2) of section 10B or with respect to any minerals other than notified minerals referred to in sub-section (3) of section 11.

CHAPTER II

GRANT OF MINING LEASE

5. **Prerequisites for auction of Mining Lease.-** (1) The State Government may initiate an auction process for grant of a mining lease with respect to an area within the State if the mineral contents in such area has been established in accordance with the provisions of the Minerals (Evidence of Mineral Contents) Rules, 2015.

(2) The State Government shall, prior to issuance of the notice inviting tender with respect to mineral auction, identify and demarcate the area where a mining lease is proposed to be granted through auction by using total station and differential global positioning system and the area so demarcated shall be classified into forests land, land owned by the State Government and land not owned by the State Government.

(3) The extent of area so demarcated shall include area required for all the activities falling under the definition of 'mine' as defined in clause (j) of sub-section (1) of section 2 of the Mines Act 1952 (35 of 1952).

6. **Eligibility for Mining Lease.-** (1) For the purpose of participating in the auction of mining lease, an applicant shall meet the requirements as specified in section 5 and the terms and conditions of eligibility as specified in Schedule I.

(2) The State Government may having regard to article 244 and the Fifth Schedule and Sixth Schedule to the Constitution, the provisions of the Panchayats (Extension to the Scheduled Areas) Act, 1996 (40 of 1996); and the Scheduled Tribes and other Traditional Forest Dwellers (Recognition of Forest Rights) Act, 2006 (2 of 2007), make such amendments to Schedule I as it may deem necessary.

(3) The powers of Central Government under the proviso to sub-section (6) of section 10B shall be exercised by the State Government for reservation of particular mine or mines for any particular end use including the end use as specified in Schedule II and the State Government may earmark certain percentage of mines for end use.

(4) Where the State Government reserves a mine or mines for any particular specified end use, the minerals extracted under the mining lease shall, -

(i) be utilised solely for the specified end use; and

(ii) not be sold or transferred or otherwise disposed of, either directly or indirectly.

(5) The eligibility for participating in the auction shall be determined as per the terms and conditions of eligibility for participating in the auction and the Successful Bidder shall be decided solely on the basis of financial bids submitted by the eligible bidders.

7. **Electronic Auction.-** (1) An auction shall be conducted only through an online electronic auction platform.

(2) The State Government may utilise any online electronic auction platform which meets the minimum technical and security requirements as specified in the Guidelines for compliance to Quality requirements of e-Procurement Systems issued by the Standardisation Testing and Quality Certification Directorate, Department of Information Technology, Ministry of Communications and Information Technology, Government of India.

8. **Bidding parameters.-** (1) The State Government shall specify in the tender document the minimum percentage of the value of mineral despatched, which shall be known as the "reserve price".

(2) The value of mineral despatched shall be an amount equal to the product of,-

(i) mineral despatched in a month; and

(ii) sale price of the mineral (grade-wise and State-wise) as published by Indian Bureau of Mines for such month of despatch.

(3) The bidders shall quote, as per the bidding parameter, for the purpose of payment to the State Government, a percentage of value of mineral despatched equal to or above the reserve price and the successful bidder shall pay to the State Government, an amount equal to the product of,-

(i) percentage so quoted; and

(ii) value of mineral despatched.

(4) Where an area is being auctioned for more than one mineral, the percentage of value of mineral despatched as quoted by the successful bidder under sub-rule (3) shall be applicable for the purpose of payment to the State Government in respect of each such mineral.

(5) If subsequent to grant of a mining lease, one or more new minerals are discovered, the percentage of value of mineral despatched as quoted by the successful bidder under sub-rule (3) shall be applicable for the purpose of payment to the State Government in respect of each such mineral.

9. Bidding Process.- (1) Subject to the provisions of rule 5, the State Government shall issue a notice inviting tender, including on their website, to commence the auction process and such notice shall contain brief particulars regarding the area under auction, including,-

(a) particulars of the area identified and demarcated using total station and differential global positioning system divided into forest land, land owned by the State Government, and land not owned by the State Government; and

(b) estimated mineral resources and brief particulars regarding evidence of mineral contents with respect to all minerals discovered in the area during exploration in accordance with the provisions of the Minerals (Evidence of Mineral Contents) Rules, 2015.

(2) The tender document issued by the State Government shall contain,-

(a) geological report pursuant to the Minerals (Evidence of Mineral Contents) Rules, 2015 specifying particulars and estimated quantities of all minerals discovered in the area; and

(b) revenue survey details of the area identified and demarcated using total station and differential global positioning system divided into forest land, land owned by the State Government, and land not owned by the State Government.

(3) The bidders shall be provided a fixed period, as notified by the State Government, to study the tender document and such reports and the bidding process shall commence only on expiry of such period.

(4) The auction shall be an ascending forward online electronic auction and shall comprise of the following rounds, namely:-

(a) First Round of Auction to be held in the following manner, namely:-

(i) the bidders shall submit -

(A) a technical bid comprising amongst others, documentary evidence to confirm eligibility as per the provisions of the Act and the rules made thereunder to participate in the auction, bid security and such other documents and payments as may be specified in the tender document; and

(B) an initial price offer which shall be a percentage of value of mineral despatched;

(ii) only those bidders who are found to be eligible in accordance with the terms and conditions of eligibility specified in rule 6 and whose initial price offer is equal to or greater than the reserve price, referred to as "technically qualified bidders", shall be considered for the second round of auction;

(iii) the highest initial price offer amongst the technically qualified bidders shall be the floor price for the second round of online electronic auction;

(iv) the technically qualified bidders shall be ranked on the basis of the descending initial price offer submitted by them and the technically qualified bidders holding the first fifty per cent. of the ranks (with any fraction rounded off to higher integer) or the top five technically qualified bidders, whichever is higher, shall qualify as qualified bidders for participating in the second round of electronic auction:

Provided that where the total number of technically qualified bidders is less than three, then no technically qualified bidder shall be considered to be qualified bidder and the auction process shall be annulled:

Provided further that the State Government may, in its discretion, decide not to annul the auction process if even in the third or subsequent attempt the total number of technically qualified bidders continues to be less than three and the State Government may, in such case, decide to consider the technically qualified bidders as qualified bidders so as to continue with the bidding process:

Provided also that if the number of technically qualified bidders is between three and five, then all the technically qualified bidders shall be considered as qualified bidders:

Provided also that in the event of identical initial price offers being submitted by two or more technically qualified bidders, all such technically qualified bidders shall be assigned the same rank for the purposes of determination of qualified bidders and in such case, the aforementioned fifty per cent. shall stand enhanced to fifty per cent. plus the number of technically qualified bidders, whose initial price offers are identical less the number of such identical initial price offers.

Illustration:

In the event there are a total of ten technically qualified bidders, and each technically qualified bidder submits different initial price offer, then the technically qualified bidders holding the first fifty per cent. of ranks shall be considered to be qualified bidders.

If three such technically qualified bidders submit the same initial price offer and are ranked in first fifty per cent. of the total number of ranks, then, all the three technically qualified bidders shall be considered to be qualified bidders and the total number of qualified bidders shall stand increased by two.

(b) Second Round of Auction to be held in the following manner, namely:-

(i) the qualified bidders may submit their final price offer which shall be a percentage of value of mineral despatched and greater than the floor price:

Provided that the final price offer may be revised till the conclusion of the auction as per the technical specifications of the auction platform;

(ii) The auction process shall be annulled if none of the qualified bidders submits a final price offer on the online electronic auction platform;

(iii) the qualified bidder who submits the highest final price offer shall be declared as the "preferred bidder" immediately on conclusion of the auction.

10. Grant of Mining Lease.- (1) The preferred bidder shall submit the first instalment being ten per cent. of the upfront payment as per rule 11.

(2) Upon receipt of the first instalment of the upfront payment, the State Government shall issue a letter of intent to the preferred bidder.

(3) The preferred bidder shall be considered to be the "successful bidder" upon,-

(a) continuing to be in compliance with all the terms and conditions of eligibility;

(b) payment of the second instalment being ten per cent. of the upfront payment;

(c) furnishing performance security as specified in rule 12;

(d) satisfying the conditions specified in clause (b) of sub-section (2) of section 5 with respect to a mining plan; and

(e) satisfying such other conditions as may be specified by the State Government with the prior approval of the Central Government.

(4) The successful bidder shall sign the Mine Development and Production Agreement with the State Government upon obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations.

(5) The successful bidder shall pay the third instalment being eighty per cent. of the upfront payment subsequent to execution of the Mine Development and Production Agreement, and upon such payment the State Government shall grant a mining lease to the successful bidder.

(6) The Mining Lease Deed shall be executed by the State Government within thirty days of the date of completion of the conditions specified in sub-rule (5) and shall be subject to the provisions of the Act and the rules made thereunder.

(7) The mining lease shall be for minerals found in the area pursuant to exploration prior to the auction:

Provided that where, subsequent to the auction, any new mineral is discovered, then the holder of mining lease shall follow the provisions of the Mineral Concession Rules, 1960 for inclusion of such new mineral in the Mining Lease Deed.

(8) Where, prior to the auction or subsequent to the auction, presence of minor mineral is established or discovered, such minor minerals shall be dealt in accordance with such rules made by the State Government under section 15.

(9) The date on which a duly executed Mining Lease Deed is registered shall be the date of commencement of the mining lease.

11. Upfront payment for mining lease.- (1) An amount equal to 0.50% of the value of estimated resources shall be the upfront payment.

(2) The upfront payment shall be payable to the State Government in three instalments of ten per cent.; ten per cent.; and eighty per cent. as specified in the tender document and shall be adjusted in full against the amount paid under sub-rule (3) of rule 8 within the first five years of commencement of production of mineral as specified in the tender document.

12. **Performance security for mining lease.**—(1) The successful bidder shall provide a performance security of an amount of 0.50% of the value of estimated resources and the performance security shall be adjusted every five years so that it continues to correspond to 0.50% of the reassessed value of estimated resources.

(2) The performance security provided through bank guarantee in the format as specified in Schedule III or through security deposit, may be invoked as per the provisions of –

(i) the Mine Development and Production Agreement; and

(ii) the Mining Lease Deed.

13. **Payments under mining lease.**—(1) The lessee shall pay royalties and dead rent to the State Government as specified in the Act and the rules made thereunder.

(2) The lessee shall pay the applicable amount quoted under rule 8 to the State Government on a monthly basis.

(3) The lessee shall contribute such amounts as may be required under the Act to -

(a) the designated account of the National Mineral Exploration Trust; and

(b) the designated account of the District Mineral Foundation.

(4) The lessee shall also pay such other amounts as may be required under any law for the time being in force to the concerned authorities.

14. **Payment of Interest.**—The State Government shall charge simple interest at the rate of twenty four per cent. per annum on any payment due to State Government under these rules the payment of which is delayed beyond sixty days from the due date thereof.

15. **Time Period.**—The time period for compliance of rules 10 to 14 shall be as specified in the tender document.

CHAPTER III

GRANT OF COMPOSITE LICENCE

16. **Prerequisites for auction of Composite Licence.**—(1) The State Government may initiate an auction process for grant of a Composite Licence with respect to an area within the State in accordance with the provisions of the Act and this Chapter subject to the condition that the requirements of rule 7 of the Minerals (Evidence of Mineral Contents) Rules, 2015 have been satisfied:

Provided that in case of an auction with respect to a notified mineral, prior approval of the Central Government shall be required.

(2) The State Government shall, prior to issuance of the notice inviting tender with respect to auction, identify and demarcate the area where a Composite Licence is proposed to be granted through auction using total station and differential global positioning system and the area so demarcated shall be classified into forests land, land owned by the State Government, and land not owned by the State Government.

17. **Auction for Composite Licence.**—(1) The auction process as specified in rules 6 to 9 shall be applicable for conduct of auction for grant of a Composite Licence subject to the following, namely:—

(a) the State Government shall not make any reservation on the basis of end use;

(b) the State Government shall subject to compliance of rule 16, issue a notice inviting tender, including on their website, to commence the auction process and such notice shall contain brief particulars regarding the area under auction, including,-

(i) particulars of the area identified and demarcated using total station and differential global positioning system divided into forest land, land owned by the State Government, and land not owned by the State Government; and

(ii) estimated mineral resources with respect to all minerals discovered in the area and brief particulars regarding satisfaction of the requirements specified in rule 7 of the Minerals (Evidence of Mineral Contents) Rules, 2015;

(c) the tender document issued by the State Government, shall contain,—

(i) geological report specifying particulars and estimated quantities of all minerals discovered in the area during exploration pursuant to Minerals (Evidence of Mineral Contents) Rules, 2015; and

(ii) revenue survey details of the area identified, demarcated using total station and differential global positioning system divided into forest land, land owned by the State Government, and land not owned by the State Government;

(d) the bidders shall be provided a fixed period, as prescribed by the State Government, to study the Tender Document and such reports and the bidding process shall commence only on expiry of such period.

18. Grant of Composite Licence.—(1) Upon completion of the auction process, the preferred bidder shall submit a performance security in the manner specified in sub-rule (1) of rule 19 and upon receipt of such performance security, the State Government shall issue a letter of intent to the preferred bidder.

(2) On receipt of the letter of intent the preferred bidder shall be considered to be the successful bidder upon fulfilment of the following conditions, namely:—

(a) compliance with all the terms and conditions of eligibility;

(b) obtaining all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of prospecting operations; and

(c) submitting the Scheme of prospecting.

(3) Upon fulfilment of the conditions specified in sub-rule (2), the State Government shall grant a Composite Licence to the successful bidder and such Composite Licence shall be subject to the provisions of the Act and the rules made thereunder, as applicable to a prospecting licence and mining lease.

(4) The minimum area for grant of a Composite Licence shall not be less than the minimum area for which a mining lease may be granted in accordance with the provisions of the Mineral Concession Rules, 1960 and the maximum area shall be in accordance with section 6 as applicable to a prospecting licence.

(5) The holder of a Composite Licence shall conduct geological exploration of the area under the Composite Licence so as to ascertain evidence of mineral contents and shall submit periodic reports in accordance with the Act and rules made thereunder, as applicable to a prospecting licence and all reports, studies and other documentation related to the geological exploration of the area under the Composite Licence shall be submitted to the State Government and Indian Bureau of Mines.

(6) If a holder of a Composite Licence,—

(a) fails to complete prospecting operations in accordance with sub-section (9) of section 11 or fails to establish the existence of mineral contents in accordance with sub-section (10) of section 11, and the Minerals (Evidence of Mineral Contents) Rules, 2015, such holder shall not be eligible to receive a mining lease and the Composite Licence shall be terminated;

(b) completes prospecting operations in accordance with sub-section (9) of section 11 resulting in determination of evidence of mineral contents conforming to the Mineral (Evidence of Mineral Contents) Rules, 2015, such holder shall make an application to the State Government for grant of a mining lease accompanied with the first instalment, being ten per cent. of the upfront payment:

Provided that the mining lease shall be granted only with respect to the area for which evidence of mineral contents has been found and shall not be for an area larger than the maximum area for which a mining lease may be granted under the Act:

Provided further that any excess area shall be deemed to be surrendered by the holder of Composite Licence after completing its reclamation.

(7) Upon receipt of the duly completed mining lease application and the first instalment of the upfront payment as specified in clause (b) of sub-rule (6), the State Government shall issue a letter of intent for mining lease.

(8) A Mine Development and Production Agreement shall be executed between the State Government and the holder of Composite Licence if the holder of a Composite Licence—

(a) continues to comply with the terms and conditions of eligibility;

(b) pays the second instalment being ten per cent. of the upfront payment;

(c) furnishes the enhanced performance security as specified in sub-rule (2) of rule 19;

(d) satisfies the conditions specified in clause (b) of sub-section (2) of section 5 with respect to a mining plan;

(e) obtains all consents, approvals, permits, no-objections and the like as may be required under applicable laws for commencement of mining operations; and

(f) satisfies such other conditions as may be specified by the State Government with the prior approval of the Central Government.

(9) The holder of the Composite Licence shall pay the third instalment being eighty per cent. of the upfront payment, subsequent to execution of the Mine Development and Production Agreement, and upon such

payment, the State Government shall execute a Mining Lease Deed with the holder of the Composite Licence within thirty days of the date of completion of all the conditions specified in sub-rule (8).

(10) The mining lease shall be subject to the provisions of the Act and the rules made thereunder.

(11) The mining lease shall be for minerals found in the area pursuant to exploration prior to the auction:

Provided that where subsequent to the auction, any new mineral is discovered, then the holder of the mining lease shall follow the provisions of the Mineral Concession Rules, 1960 for inclusion of such new mineral in the Mining Lease Deed.

(12) Where prior to the auction or subsequent to the auction, presence of minor mineral is established or discovered, such minor minerals shall be dealt in accordance with such rules as may be made by the State Government under section 15.

(13) The date on which a duly executed Mining Lease Deed is registered shall be the date of commencement of the mining lease.

19. Performance Security for Composite Licence.—(1) An amount of 0.25% of the value of estimated resources shall be payable by the preferred bidder as performance security prior to the issuance of the Composite Licence.

(2) The amount of performance security shall be revised, prior to the issuance of the mining lease, to an amount of 0.50% of the value of estimated resources.

(3) The performance security provided under sub-rule (2) shall be adjusted every five years so that it continues to correspond to 0.50% of the reassessed value of estimated resources.

(4) The performance security may be invoked as per provisions of,-

(i) the Mine Development and Production Agreement; and

(ii) the Mining Lease Deed.

CHAPTER IV

MISCELLANEOUS

20. Power to rectify apparent mistakes.—Any clerical or arithmetical mistake in any order passed by the Government or any authority or officer under these rules and any error arising therein due to accidental slip or omission, may be corrected by the Government, the concerned authority or officer, as the case may be:

Provided that no rectification order prejudicial to any person shall be passed unless such person has been given a reasonable opportunity of being heard.

21. Special provisions relating to minerals specified in Part B of the First Schedule to the Act.—(1) Notwithstanding anything contained in these rules—

(a) if the holder of a Composite Licence or mining lease discovers any mineral specified in Part B of the First Schedule to the Act and not specified in such licence or lease, in the area granted under such licence or lease, the discovery of such mineral shall be reported to the Director, Atomic Minerals Directorate for Exploration and Research, Hyderabad within sixty days from the date of discovery of such mineral;

(b) the licencee or lessee shall not win or dispose of any mineral specified in Part B of the First Schedule to the Act unless such mineral is included in the licence or lease or a separate licence or lease for the purpose has been obtained;

(c) the quantities of any mineral specified in Part B of the First Schedule to the Act recovered incidental to such prospecting or mining operations shall be collected and stacked separately and a report to that effect shall be sent to the Director, Atomic Minerals Directorate for Exploration and Research, Hyderabad every month for such further action by the licencee or lessee as may be directed by the Atomic Minerals Directorate for Exploration and Research.

(2) The licencee or lessee referred to in sub-rule (1) shall, within sixty days from the date of discovery of any mineral specified in Part B of the First Schedule to the Act, apply to the Secretary, Department of Atomic Energy, Mumbai, through the State Government, for grant of a licence to handle such minerals under the provisions of the Atomic Energy Act, 1962 (33 of 1962) and the rules made thereunder and the Department of Atomic Energy shall intimate to the State Government regarding issue of the licence in this regard.

22. Exploration Obligation.—The holder of a mining lease shall complete detailed exploration (G1 level exploration) and prepare a detailed feasibility study report conforming to Part IV and V of the Mineral (Evidence of Mineral Contents) Rules, 2015 over the entire area under the mining lease, within a period of five years from the date of commencement of such mining lease.

SCHEDULE I

Terms and conditions of eligibility

[See rules 6(1) and 6(2)]

1. The following net worth requirements shall be applicable for an auction of mining lease depending on the Value of Estimated Resources,—

   (a) If the Value of Estimated Resources is more than Rupees 25 Crores, the applicant, including an individual, shall have a net worth more than 4% of Value of Estimated Resources.

   (b) If the Value of Estimated Resources is less than or equal to Rupees 25 Crores, the applicant, not being an individual, shall have a net worth more than 2% of Value of Estimated Resources.

   (c) If the Value of Estimated Resources is less than or equal to Rupees 25 Crores, the applicant, being an individual, shall have a minimum net worth of 1% of the Value of Estimated Resources.

2. In case of auction of Composite Licence, the applicant must have a net worth of more than 1% of the Value of Estimated Resources.

Explanation:

(1) In case an applicant is a subsidiary of another company incorporated in India, the net worth of such holding company may also be considered:

Provided that, in such case, the applicant must continue to be a subsidiary of such holding company until such time the applicant meets the aforementioned net worth threshold.

(2) In case of a Company, the Net worth shall be the sum of paid up share capital and the free Reserves as per the audited Balance Sheet of the immediately preceding financial year.

(3) In case of an individual, the Net worth shall be the closing cash balance on the last date for submission of application, and such amount may include amount in Savings Bank accounts in Scheduled Bank/ Post Office, free and un-encumbered Fixed Deposits in Scheduled Banks, Post Office, Listed Companies/Government Organisation/Public Sector Undertaking of State and Central Government, Kisan Vikas Patra, National Saving certificate, Bonds, Shares of Listed Companies, Listed Mutual Funds, Unit Linked Insurance Plan, Public Provident Fund, Surrender Value of Life Insurance policies in the name of Applicant.

SCHEDULE II

Indicative list of specified End Use

[See rule 6(3)]

Sl. No.	Mineral/Ore	End Use
1	Bauxite	Alumina Refinery
2	Iron ore	Integrated steel plants
3	Limestone	Cement Plant

SCHEDULE III

Format of Performance Security

[See rules 12(2)]

[*Reference number of the bank*] [*date*]

To
The Governor of [Name of State]
[*address*]

WHEREAS

A. **[Name of the Successful Bidder]** incorporated in India under the Companies Act, [1956/2013] with corporate identity number [CIN of the Successful Bidder], whose registered office is at [address of registered office], India and principal place of business is at [address of principal place of business, if different from registered office] (the "**Successful Bidder**") is required to provide an unconditional and irrevocable bank guarantee for an amount equal to INR [*figures*] (Indian Rupees [*words*]) as a performance security valid until [*date of expiry of performance bank guarantee*] ("**Expiry Date**").

B. The Performance Security is required to be provided to **The Governor of [Name of State]**, (the "**State**") for discharge of certain obligations under the Tender Document dated, [date] with respect to auction of [particulars of auction] and the Mine Development and Production Agreement to be executed between the State and the Successful Bidder (collectively the "**Agreement**").

C. We, [*name of the bank*] (the "**Bank**") at the request of the Successful Bidder do hereby undertake to pay to the State an amount not exceeding INR [*figures*] (Indian Rupees [*words*]) ("**Guarantee Amount**") to secure the obligations of the Successful Bidder under the Agreement on demand from the State on the terms and conditions herein contained herein.

NOW THEREFORE, the Bank hereby issues in favour of the State this irrevocable and unconditional payment bank guarantee (the "**Guarantee**") on behalf of the Successful Bidder in the Guarantee Amount:

1. The Bank for the purpose hereof unconditionally and irrevocably undertakes to pay to the State without any demur, reservation, caveat, protest or recourse, immediately on receipt of first written demand from the State, a sum or sums (by way of one or more claims) not exceeding the Guarantee Amount in the aggregate without the State needing to prove or to show to the Bank grounds or reasons for such demand for the sum specified therein and notwithstanding any dispute or difference between the State and Successful Bidder on any matter whatsoever. The Bank undertakes to pay to the State any money so demanded notwithstanding any dispute or disputes raised by the Successful Bidder in any suit or proceeding pending before any court or tribunal relating thereto the Bank's liability under this present being absolute and unequivocal.

2. The Bank acknowledges that any such demand by the State of the amounts payable by the Bank to the State shall be final, binding and conclusive evidence in respect of the amounts payable by Successful Bidder to the State under the Agreement.

3. The Bank hereby waives the necessity for the State from demanding the aforesaid amount or any part thereof from the Successful Bidder and also waives any right that the Bank may have of first requiring the State to pursue its legal remedies against the Successful Bidder, before presenting any written demand to the Bank for payment under this Guarantee.

4. The Bank further unconditionally agrees with the State that the State shall be at liberty, without the Bank's consent and without affecting in any manner the Bank's obligation under this Guarantee, from time to time to:

   (i) vary and/or modify and of the terms and conditions of the Agreement;

   (ii) extend and / or postpone the time for performance of the obligations of the Successful Bidder under the Agreement, or

   (iii) forbear or enforce any of the rights exercisable by the State against the Successful Bidder under the terms and conditions of the Agreement.

   and the Bank shall not be relieved from its liability by reason of any such act or omission on the part of the State or any indulgence by the State to the Successful Bidder or other thing whatsoever which under the law relating to sureties would, but for this provision, have the effect of relieving the Bank of its obligations under this Guarantee.

5. Any payment made hereunder shall be made free and clear of and without deduction for, or on account of, any present or future taxes, levies, imposts, duties, charges, fees, commissions, deductions or withholdings of any nature whatsoever.

6. The Bank agrees that State at its option shall be entitled to enforce this Guarantee against the Bank, as a principal debtor in the first instance without proceeding at the first instance against the Successful Bidder.

7. The Bank further agree that the guarantee herein contained shall remain in full force and effect during the period that specified in the Agreement and that it shall continue to be enforceable till all the obligations of the Successful Bidder under or by virtue of the said Agreement with respect to the Performance Security have been fully paid and its claims satisfied or discharged or till the State certifies that the terms and conditions of the Agreement with respect to the Performance Security have been fully and properly carried out by the Successful Bidder and accordingly discharges this guarantee. Notwithstanding anything contained herein, unless a demand or claim under this guarantee is made on the Bank in writing on or before the Expiry Date the Bank shall be discharged from all liability under this guarantee thereafter.

8. The payment so made by the Bank under this Guarantee shall be a valid discharge of Bank's liability for payment thereunder and the State shall have no claim against the Bank for making such payment.

9. This Guarantee is subject to the laws of India. Any suit, action, or other proceedings arising out of this Guarantee or the subject matter hereof shall be subject to the exclusive jurisdiction of courts at the State of [respective State].

10. The Bank has the power to issue this Guarantee in favour of the State. This guarantee will not be discharged due to the change in the constitution of the Bank

11. The Bank undertakes not to revoke this Guarantee during its currency except with the previous consent of the State in writing.

12. The State may, with prior intimation to the Bank, assign the right under this Guarantee to any other departments, ministries or any governmental agencies, which may act in the name of the Governor. Save as provided in this Clause 12, this Guarantee shall not by assignable or transferable.

13. Notwithstanding anything contained herein,

a. the liability of the bank under this bank guarantee shall not exceed the Guarantee Amount.

b. This bank guarantee shall be valid up to the Expiry Date.

14. The Bank is liable to pay the guaranteed amount or any part thereof under this bank guarantee only and only if the State serves upon the Bank a written claim or demand on or before the Expiry Date.

Dated the [day] day of [month] [year] for the Bank.

In witness whereof the Bank, through its authorized officer, has set its hand and stamp.

_____

(Signature)

_____

(Name and Designation)

(Bank Stamp)

[F. No. 1/11/2015-M.VI (Part I)]

R. SRIDHARAN, Addl. Secy.

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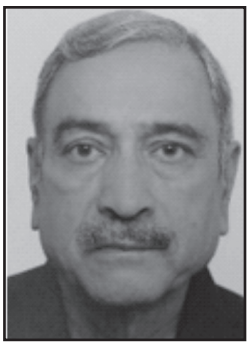

Down the Memory Lane

Er S. C. Agarwal

Memorial Events of PGPT Training at Chinakuri 1&2 Colliery of Bengal Coal Company, WB.

MEMORIAL EVENTS during PGPT Training at Chinakuri 1&2 Colliery of Bengal Coal Company, WB. After passing out from BHU as mining engineer, in 1963, standing first in merit, Directorate of Practical Training, allotted me Chinakuri 1&2 Pits coal mine for taking training as P G P T. I was luckily accommodated in PGPT hostel sharing room with another trainee from ISM. During 2 years of training I was assigned various jobs to learn and supervise.

This mine belonged to Bengal Coal Company. It was the then deepest, highly gassy and most mechanised coal mine in India. In 1962-63 the first continuous drum Anderton Shearer was installed at this mine on a 600 ft longwall face with 7 ft height and dipping 1 IN 5.The Shearer was installed on Penzer conveyor. While moving down, drum took a slice of about 4 ft in 7 ft height. Fig.No 1shows the layout of face in slice.

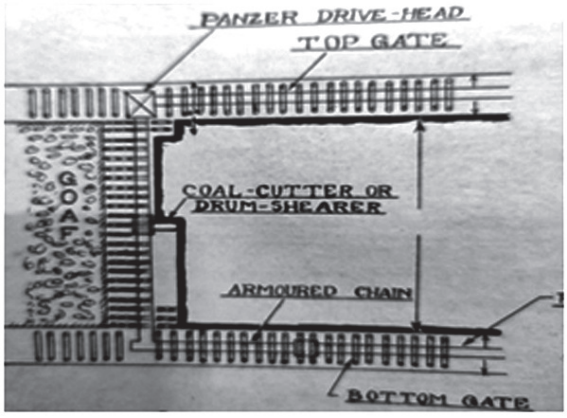

Fig-1: Layout of face in slice

Instead of open goaf, in present case the voids were filled with sand. The coal was transferred on Penzer conveyor through a plough. The coal was then transferred to stage loader, then to gate -end conveyor and finally transferred to loading conveyor taking coal down to loading point at pit level. Fig No 2 shows coal car being loaded at conveyor loading point.

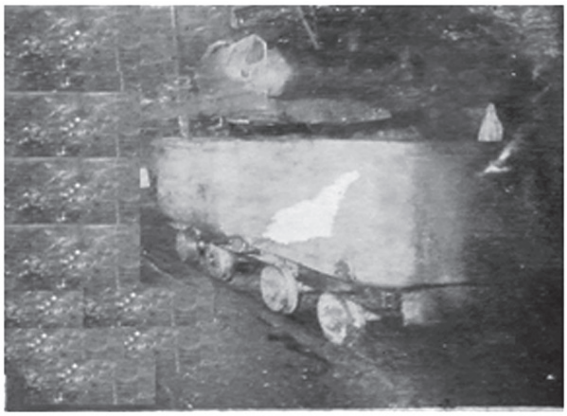

Fig.2: Coal car being loaded at conveyor loading point

Friction props with bars were used to provide adequate roof support.This mine was uniquely working below Damodar River. Hydraulic sand stowing was in practice to pack the voids with sand. Damodar River, through a pipe line laid in a steeply inclined drift especially excavated extending from banks of river to the workings 2000 ft below the ground.

Underground Coal Transportation:

Diesel locomotives were used as mode of transport coal underground. Diesel locomotives were deployed to carry the empty mine cars to loading point and carry back the loaded mine cars to winding pit. I was assigned this job for 2 months. I remember the day when I was on this duty in first shift, Mr L D Hughes the then General Manager accompanied with Mine Manager Mr LN Ohri, was on visit the mine. Unfortunately due to short of cars at loading point, operation of the sharer came to halt. The shearer was working a series of conveyor belts.At pit bottom I coupled 8 mine cars each of 2 t capacity attached with the Loco to make a train. After cleaning my hands with cotton jute, I was driving the train to the loading point, when I was stopped by the visiting officers showing their annoyance. Mr Hughes asked me to show my hands. Seeing my hands "He exclaimed, "See

MrOhri his hands are not even dirty, what he will work." This was what used to be yardstick of hard work.

Maintenance of Underground Track: For smooth operations of Locomotives and avoid any derailment, it was essential to maintain the track. I was assigned this job for 4 months. I was given a Rail Mistry and a helper for the work. The work was to be done in night shift, 12 midnight to 8 AM. Down below at 2000 ft, it used to be freezing cold. I remember using jute sack to cover my head and ears and save from freezing cold. Job assigned included changing fishplates and bolt where necessary, ram the ballast under the track, straighten the rail where bent, using Jim Crow, change the V- points and adjust guard rail along curves.

Sand Stowing in Voids:

DGMS while granting working permission for longwall face, had specified permissible max span of 21 ft. Working would not continue unless reduced to working span to safe limit of 12 ft by carrying sand stowing. I remember the day when because of failure of stowing, span over shooted to 36.5 ft and the further working of Shearer had to be stopped leading to nil production. I, accompanied by MrA. Kumar under Manager was assigned the job, to go down the pit, complete the stowing. This had included removing the steel support from within the stowing area,providing barricade by bamboo matting and brattice cloth all along 600 ft length, and both gate end to hold the sand and allow water to seep out. Fig No 3 shows Support of a Longwall face on top Gate- ends.

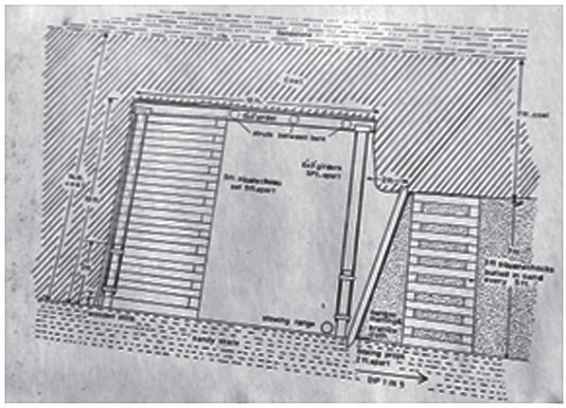

Fig.-3: Support of a Longwall face on top Gate-ends

Since the stowing area was larger than usual, it took 72 hrs. to complete the job. During this period we didn't come out, manager arranged food for us down the working place and in between we slept on floor to rest for a while. This taught me endurance in difficult situation.

Research Department:

Company had a separate research department headed by Shri R R Khanna, a very senior mining executive and Dr A K Mishra. The department was working, besides many field requirements, on development of yielding steel props for support of gate -ends of Longwall face, picture No 3. I was assigned job of recording yield of these props every 24 hours. This was to strengthen the props to limit the convergence/ yield to provide better safety from roof failure. This was in fact was very interesting and learning subject for me.

We the PGPT were paid stipend of Rs 250/ month, 150/ paid monthly by the company and Rs 100/ month by Directorate of Practical Training(GOI), but paid Quarterly/ Half Yearly. I managed my expenditure with in this but not asked any money from parents. I remember on few occasion bunked from duty for the day and returned to hostel to study for second class examination.

However my rigorous training as PGPT for 2 years has helped me to achieve excellence in my 50 years career in mining industry. It taught me discipline, hard work, and dedication, ethical value and integrity in my job .I give full credit to my training to my qualifying Second Class as well First Classes Certificate to Manage Coal Mine in First attempt, in 1965 & 1966 respectively. This was dream for many.

Note: The pictures and layouts have been retrieved from proceedings of Symposium on Working Thick Seams organised by MGMI in 1964 at Dhanbad.

Down the Memory Lane

--JITENDRA NATH JOHARI, Dy DGMS
LM-1672, Mob: 8003188087

An Accident and 25 years.....

I was working as Director of Mines Safety, Udaipur Region, which covered all types of Mines in Gujarat two districts of M.P., five districts of Rajasthan and Daman and Dieu. While I was on tour of Veraval area (Gujarat) along with Deputy DG, on 28.8.94 I was informed that a major accident had occurred at Dariba Mines. We reached the mines next day at 2 AM. It was learnt that about 12 persons had been killed in the shaft under deepening, by the flow of liquid material from the VRM Stope under filling. The site of accident was not approachable due to Slurry spread over the approach levels. Subsequently it was revealed that one more person had died due to high speed of inrush of the slurry, thus 13 persons died, 12 of whom were contractual workers of KGF mines employed in the Shaft.

Dewatering of the inundated shaft and roadways were undertaken. It took many days to clear the muck from the Shaft, only bones were recovered.

I halted at the Mine Guest House along with my steno Late Sh Somrajan during the period of enquiring which spanned over 11 days. I visited the site the site of accident viz cross cut of stope under filling where the drainage plug had failed, recorded several statement of witnesses and officials, seized some of the records, inspected the tailing mill plant which supplied the fill material, stores and other relevant places.

I was required to submit the final accident enquiry report instead of Deputy DG, as he got exemption from DG on the ground that he was to retire in about six months time. As such I did not depend on the evidence recorded by other officials and used only the evidence recorded by myself.

The method of Stoping was VRM (Vertical Crater Retreat Method) an imported technology. In this method Stoping was done by blasting of large diameter holes from upper level and blasted ore was transported by remote control electrically driven loaders, which approached through Crosscut. After completion of Stoping a 4.5 meter of drainage plug was constructed with mill tailings (Crushed & Sieved) to which prescribed percentage of cement was added. For this purpose a sound barricade was constructed and fitted with drainage pipes and pressure gauge.

The plug was allotted for a prescribed period. After the plug had cured, 4 large dia-ploythene pipes having holes all along its length were wrapped with sheets of similar type material and having mesh holes were wrapped around them and lowered through holes from the upper level , to collect the water from the slurry being filled and transport to plug level. After all the preparations were completed, the mill tailing slurry mixed with 5% of cement was poured into the other holes for filling the Stope. A cycle of filling and rest period was allowed for settling of the solid material. Precaution was to be taken to ensure that there was buildup of water or behind the plug, which was not of the nature of a Dam. They were following the method of determining the height of water column above the settled material. Keeping an account of water being drained out in relation to the water in the fill material poured during a certain period would have been more reliable indicator.

The enquiry revealed that the cause of accident was

1. Not curing the plug for the period prescribed, so that it could develop strength.
2. Not keeping the feeling operations closed, so that adequate draining of water could take place.
3. Not keeping of proper information of water drained, so that there was no build of hydraulic pressure on the plug in the cross-cut.
4. The speed of the slurry and the broken parts (boulders) was such that it did not allow any escape time to 12 workers working in the shaft

under deepening. The casualties could have been still more; some people held the electric cables etc to prevent themselves from being washed away.

5. The GM, Manager, one assistant manager and one under manager was found responsible for the accident and a criminal case was files against them under the Mines Act 1952, MM reg, 1961 in the court of 1st Class Magistrate at Rail Magra(Dist Raj Samand). It was very difficult to get a lawyer, for the purpose at Udaipur (who would go so many times to the District Court, leaving his other obligations), basis (irrespective of number of hearings and years involved).

With the able assistance of Steno and another Staff Shri SK Sukhwal, the 17 page report with its voluminous enclosures, was handed over to DG just after 3 days of completion of the accident enquiry; which saved DGMS from a 'Court of Enquiry' , which was long drawn and very troublesome. Submission of such an accident enquiring within 3 days of completion of enquiry, I think it is World Record. However, no appreciation was expressed by DGMS.

The court case lingered for years and years for one reason or the other, specially due to disinterest of the court and its Shunting to District Court often. The Court was 75 kms away from my place and attending it was troublesome especially during summer when the court started at 7am; the advocate from Nathdwara had to be picked up and cajoled.

On one occasion of morning court date, I had to leave my bedridden Stroke affected Mother under the care of a neighbor.

The complaints also used their influence and "Next Date" was the outcome on many dates. The lawyer misguided and I had to be very careful whenever my statements were recorded. My examination-in-chief could only be completed in the year 2010, although I had retired from service in September 2000.

The court took 25 years and ultimately pronounced GM, Manager, Assistant manager and Under Manager as guilty in 2019. I was very much harassed by the courts methodology of work and procedure.

Once I met Shri HV Paliwal, the then Director (Mining Operations) HZL at social gathering after I had retired. In respect of accident enquiry report, he said" The report was very well prepared and I had prepared for submission of my letter of resignation".

–-- Jitendra Nath Johari, Dy DGMS
LM-1672, Mob: 8003188087

Evolution of India's Mineral Policy

The Industrial Policy Resolution, 1956(IPR) put major minerals such as coal, lignite, mineral oil, iron ore, copper, atomic minerals etc, in Schedule A, which was reserved exclusively for the public sector and minor minerals in Schedule B, in which the private sector was allowed to participate along with the public sector. In pursuance of the IPR, the Parliament enacted the Mines and Minerals (Regulation and Development) Act, 1957 [MMRD Act] applicable to all minerals except mineral oil. Mineral Concession Rules (MCR) and Mineral Conservation and Development Rules (MCDR) were framed under the Act. MCRdeals with major minerals but the State governments are free to frame their own rules for mineral concessions with respect to minor minerals. Accordingly, most States have framed their own Minor Mineral Concession Rules

MGMI TRANSIT HOUSE

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3. Full tariff will be applicable for the nominee of MGMI member.
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