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Mining Engineers' Association of India

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September - 2021



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President's Message.....

Dear members,

This is my first message as the 32nd **PRESIDENT of Mining Engineers' Association of India**. It is a special honor and a privilege for me to begin my tenure as the President of the Association.

In the Association's Council Meeting held at Hospet on 20th August 2021, followed by the Annual General Meeting, I was installed as the President of the Association for the term 2021- 2023.

I would like to thank all the former Presidents, Council members, Chapter Chairmen & Secretaries and the members of the Association for their unequivocal support and cooperation in elevating me to this position.

I would like to recollect my journey in MEAI- starting with Sri. T.V. Chowdary and Late Sri. C.L.V.R Anjaneyulu introduced me as a Provisional member in 1993 and later converted to a Life member in 1996. I actively participated in the MEAI Activities and worked in different capacities such as Founder Chairman of Rayalaseema Chapter, Council member, VP-III, VP-II, VP-I and finally as President.

The tagline I would like to carry forward as the MEAI's Vision is **"TAP THE POTENTIAL TO SCALE NEW HIGHTS"**.

As I take over as the President of the Association, I have set the following targets to achieve during my tenure:

- Induction of Young Engineers and make them future torchbearers of the MEAI so as to carry and take it forward
- Imparting training to the Young Engineers passing out of institutions, using the vast potential and knowledge of our senior members so as to fill the gap between the industry expectations and the potential of students. This will also help in career development of our engineers
- Arranging apprenticeship training/ on job training to fresh engineers from institutions through organizations/ industry to provide the professional certificate of competency and helping them start their career as Young Engineers
- Creating the Brand of MEAI by organizing International Conferences at regular Intervals
- Proactively tackling the issues that arise from time to time connected to mining industry
- Continuing interaction with IBM, DGMS, State and Central Governments, and other agencies on technical matters related to mining
- Striving to increase the Association Membership by 20% through special drives by coordinating with the Chapters Chairmen, Secretaries and esteemed leaders
- Extending the Associations' activities in potential areas by forming new Chapters in India and abroad and also energizing the inactive Chapters to improve their performance and participation
- Improving the financial sustainability of the Association by initiating various activities
- Strengthening the position of Senior Citizens Fund that was created to support the medical assistance to our senior members

I recollect and acknowledge the enormous contributions made by our former leaders in shaping and invigorating our Association right from its inception. Our outgoing president, Sri. Sanjay Kumar Pattnaik deserves our special appreciation and gratitude for guiding the Association so efficiently and taking it to the current heights. I reminisce about the efforts put in by Sri. Sanjay Pattnaik in introducing "Senior Citizen Fund". He strived to sustain the activities of MEAI even during this pandemic situation.

MEAI has instantaneously transformed into the digital era by utilizing contemporary technologies and conducted a maximum number of webinars and Council meetings. Rolling out the IMIC training program under his leadership is another milestone in the history of MEAI.

I would like to thank Dr. P.V. Rao & his team for putting the MEAI journal on the members' table promptly with plenty of informative articles.

With warm greetings

K. MADHUSUDHANA
President



Mining Engineers' Association of India

Regd. Office : Rungta House, Barbil (Odisha)

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EDITOR'S DESK



Dr. P.V. Rao
Editor, MEJ

Throughout the frustrating period of the Coronavirus pandemic that engulfed the world, the Mining Engineers' Association of India continued to be vibrant by holding several virtual knowledge sharing accomplishments. Some of the active Chapters of the Association held all the routine programs as per its annual calendar with the same level of zeal and enthusiasm as before. The disruption caused by the Coronavirus pandemic invigorated the Association's Headquarters and the Chapters to learn more innovative ways of magnificently enduring the knowledge sharing programs by adapting contemporary technologies. Some of our Association members sadly succumbed to the pandemic while many of them recovered from this lethal contagion and continued to improve from its ill effects.

The Association members and its leadership made constructive *CRIRSCO virtual Annual meet will be held from 11-16 October 2021 during 5:30-8:30 pm IST* contributions in the formulation of the recent amendments announced by the Government of India to MMDR Act and allied Rules and Regulations. The Indian mining companies and the investors, in general, seem to be content with some of these progressive amendments made with respect to the usage of minerals, giving boost

to participation of private investments in carrying out scientific exploration and allotment of prospecting and mineral concessions. Nonetheless, the mineral industry professionals are not fully convinced of the likely outcome of the amendments to attract hefty foreign investments in the prospecting and exploration of deep-seated mineral assets through the auction process. Allotment of prospecting licences to interested parties on first cum first serve basis and enabling their seamless transition to mining leases is still conceived as the preferred option by the inventors compared to auctioning route.

The Government of India considers the auctioning of mineral and coal blocks as the efficient option in developing the country's mineral resources. However, it is gradually becoming evident that the initial exuberance shown by the investors has been missing as they started realising the fact that the techno-economic data and reports of the blocks shared in the auction process are mostly inadequate to make sensible decisions based on such data. Non-participation of foreign investors in the auctioning process hitherto reflects this lacuna in abundance and unless it is promptly rectified, it would be a challenging task to attract the foreign investments in mineral prospecting and exploration. Even those successful bidders could not start the mining operations on time as was envisaged in the bidding process. The vital lapse noticeable in the Geological Reports was that of non-classification and reporting of the Resources and Reserves as per the international reporting standards, which might have disheartened the foreign investors to participate vigorously in the auction process. Despite devising a Made in India Indian Mineral Industry Code for reporting mineral resources and reserves in India (IMIC), which was duly ratified by the international reporting body CRIRSCO, the Government of India chose not to recognize and adopt it in the preparation of Geological Reports prepared for the bidders. Foreign investors and the global stock exchanges recognise only the CRIRSCO compliant internationally recognised Resources and Reserves reporting system and it is not yet late for the Indian government to further deliberate on all relevant aspects that are adversely affecting the inflow of foreign investments in mineral exploration.

The Association continued to demonstrate its commitment in supporting the professional development of the mineral industry professionals and its members through NACRI developed and successfully executed Professional Development Programs (PDP) on IMIC. NACRI conducted virtual 40-hour PDPs in January and April 2021 wherein over 40 professionals successfully completed the mandatory training requirements to consider for the registration of IMIC Competent Person (CP). The Association has already enrolled a few of these successful professionals as RCPs. The Association intends to conduct quarterly PDP on IMIC and NACRI to enable the mineral industry professionals to update their professional competencies. The SME of USA, as part of the NRO reciprocity process of CRIRSCO, was the first NRO to recognise the MEAI as the overseas professional organisation.

CRIRSCO virtual Annual meet will be held from 11-16 October 2021 during 5:30-8:30 pm IST and the updates on the deliberations will be shared with our members in near future.

- Editor

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NEWS FROM THE MINING WORLD

➤ **How fossil fuels can help decarbonize the economy**

Researchers at Rice University's Carbon Hub are proposing the idea of actually using hydrocarbons to slash carbon dioxide emissions.

In an opinion paper published in the journal *Proceedings of the National Academy of Sciences*, carbon materials expert Matteo Pasquali and Carl Mesters, retired chief scientist for chemistry and catalysis at Shell, propose splitting hydrocarbon molecules into hydrogen and solid carbon. The hydrogen could be used as a clean-burning fuel that produces no carbon dioxide, while the solid carbon could become a cheap and plentiful source of high-performance materials used by a wide range of industries.

"Each year, we pull more than 10 billion tons of carbon from the ground in the form of oil, coal, and natural gas," Pasquali said. "That activity accounts for 7% of the global economy, and we need all possible sources of hydrogen. We can keep producing those hydrocarbons as long as we don't burn them."

According to the scientist, the technology already exists to both split hydrocarbons and make solid carbon materials for broad industry adoption. He has studied carbon nanotubes for almost two decades and pioneered methods for spinning the nanomaterials into sewable, threadlike fibers that conduct electricity as well as copper.

Pasquali argues that since the know-how is there, the issue is now the efficient scalability of the manufacturing processes so that these new materials can compete with metals on price.

"If high-performance carbon materials were plentiful enough to compete with metals in terms of price, market forces would take over and we could eliminate metals that today require 12% of our annual global energy budget to mine, process, and refine," the expert said.

In the scientists' view, the transition to a world where hydrocarbons are split rather than burned has the potential to generate robust growth in manufacturing jobs, most of which will stay at the local level where oil and gas are already established.

"We're in a position similar to solar energy a few decades ago: We know we can deliver performance, but manufacturing and scale have to improve to drive

costs down," Pasquali said. "We must get there faster than solar did."

MINING.COM Staff Writer | August 7, 2021

➤ **Bacteria help extract rare earths from mine slag heaps**



*Klondyke lead mine slag heaps.
(Reference image by Terry Hughes, Flickr).*

Researchers at the French Geological Survey are looking at ways to extract rare earth elements from mine slag heaps using bacteria found in the subsoil.

According to a report by the agency AFP, the process starts by pulverizing mine tailings and dissolving them in liquid.

Then, the scientists inject different bacteria depending on the metal they are looking for. They also inject oxygen and nutrients like potassium or nitrogen to feed the microorganisms.

These solutions are immediately heated at between 30 and 50 degrees Celsius and agitated by a bioreactor, which kicks off the extraction process without the need for pressurizing.

Given that they have achieved success in the lab, the French group said it is now ready to launch tests for large-scale production, extracting rare earths, as well as cobalt, copper, and nickel from slag heaps in Finland and New Caledonia.

They said the process can be used anywhere there are piles of ore that contain metal. However, since specialized equipment is required to remove the metals from the liquid using electrolysis, the key now is for industrial partners to step in.

MINING.COM Staff Writer | August 4, 2021

➤ **South Africa coal producers bring in drones to contain theft**



Stock image

South African coal producers are battling to contain theft and using drones to help ensure the safety of staff and mines, according to some of the industry's biggest companies and consumers.

"We're flying drones almost every night at every operation" to provide security, Seriti Resources Holdings Ltd. Chief Executive Officer Mike Teke said in an online conference Tuesday. He called on the government to work with producers to control the problem.

Africa's most industrialized nation uses coal to generate the bulk of its electricity and to produce liquid fuels. About 30% of annual output is exported. Power utility Eskom Holdings SOC Ltd. can't meet demand and has had to implement rolling outages to protect the grid.

"There is a significant amount of coal that's being stolen" from Eskom, which is prioritizing security at sites, according to Sandile Siyaya, general manager of primary energy at the state-owned company. It's in the process of calculating how much has gone missing.

Bloomberg News | July 27, 2021

➤ **Electrification may allow mines to generate extra income — report**



Teck Resources' SunMine solar energy facility in British Columbia, Canada. (Reference image courtesy of Teck Resources).

Emerging technologies in electrification may mean that, in the near future, all mining can store or generate required electricity but often more, creating extra income.

This, according to a new report by IDTechEx that states that solar and wind power with energy independence is the mining trend but that means increased energy storage from hours to seasonal.

"Imagine mines with so much electricity production and storage that they do far more downstream processing. As reserves deplete, many will even transition to being zero-emission power stations and electricity storage for local communities and industry or even national grids. The cost of making goods becomes income from reinvention. That is the untold story of mining electrification, beyond the vital safety, greening, and cost reduction of electrics," the report reads.

Some of the new technologies identified as promoters of the on-demand electrification trend are gravity storage, floating solar, and caverns for compressed air storage.

But IDTechEx's review shows that the financial benefits of electrification are often underestimated and such underestimation may lead to wrong decisions.

At present, some miners seem to be focused on how expensive it is to customize their fleet. However, the market researcher says that what they are missing is the fact that standardization will likely become the norm sooner rather than later, as some companies are already ordering Tesla Cybertrucks and construction vehicles where appropriate.

"Many pivotal advances will occur after 10 years but they need to influence planning and viability calculations now. What timing for unmanned mines, increased processing on-site, the final death of diesel, fuel-cell shakeout, tripling the endurance of battery vehicles before recharge?" Raghu Das, CEO of analysts at IDTechEx, wrote in the report.

"Later change of course to incorporate some of these dramatic opportunities will be expensive and sometimes even impossible. An open-pit mine can provide massive solar power and massive gravity storage from summer to winter when solar is feeble. Sea-floor mining may produce its own wave and tidal power for local processing and ice for local fish farming as well. At least consider the emerging options."

In Das' view, electrification is inevitable, driven by cost, regulations, health, reputation, and ever-tougher

location, morphology, and toxicity of remaining reserves. “The unmanned mine has arrived and, to be optimal, it can only be electric,” he said.

MINING.COM Staff Writer | August 8, 2021

➤ Labour relations biggest material risk for mining sector – report



Former Cerrejón workers blockading the Colombian coal miner's rail line. (Image by Sintracarbon, Twitter).

A new report by stakeholder intelligence firm Alva states that labour relations are emerging as the biggest material risk for the mining and metals industry as of Q2-2021.

The report looks into the work being done in the environmental, social and governance (ESG) fronts and ranks companies' performance based on information sourced from over 200 countries, categorized using the taxonomy of the Sustainability Accounting Standards Board, machine learning and topic modelling, and contextualized with historic trend data.

Based on this methodology, Alva found that while labour relations contributed just <1% material impact last quarter, it fell to -11% in Q2, as industrial action increases across the diversified mining sector. This situation makes it the most negative issue and the third most impactful material issue overall.

The main development affecting labour relations was the strike called by the United Steelworkers union for 2,500 members working at ArcelorMittal's operation in Quebec, Canada, while also calling for a further 1,300 member strike in the United States.

Similarly, Alva mentions the case of Glencore, BHP and Anglo American who have faced repeated clashes with the largest union at their co-owned Cerrejón mine in Colombia, which held a three-month strike last year.

This quarter, the mine declared force majeure and halted operations because of two blockades which

prevented it from bringing in supplies of fuel on a rail line. One of the blockades was launched by former workers who were upset by recent job cuts, as the coal mine saw its exports fall to their lowest level in the past 18 years amid coronavirus restrictions and falling global demand for coal.

BHP is also facing a revolt at its mining camps in Australia after imposing a ban on drinking after 9:30 p.m., with unions saying that staff are “being treated like children.”

Besides labour relations, the study shows that the management of waste and hazardous materials and measures of health and safety represent material risks for the mining sector in Q2, although overall negative material impact falls by almost half compared to Q1.

When it comes to waste and hazardous materials, one of the main issues identified in the report is the situation at Rio Tinto's Tiwai Point aluminum smelter in New Zealand, where investigations are being conducted after claims that highly toxic waste has been buried in unmapped sites around the facility.

Another major problem reported is connected to Newcrest's Cadia gold mine tailings dam collapse in 2018. According to Alva's review, in the Cadia and Errowanbang valleys in New South Wales, Australia, people are reporting health issues caused by dust events that are a consequence of the collapse.

Also in New South Wales, health and safety issues are taking centre stage as the resources regulator is prosecuting South32's subsidiary Endeavour Coal over an incident that led to a worker suffering serious injuries when operating a conveyor.

In Queensland, on the other hand, the May 2020 explosion at Anglo American's Grosvenor coal mine is found to have been caused by repeated overproduction and poor planning, exposing workers to “unacceptable risk”.

The good moves

Alva's review also points out the areas in which miners are making positive changes. For Q2-2021, biodiversity is generating the highest impact reaching +10%. Comparatively, in Q1 this topic registered a -8% negative material impact.

“The heightened materiality comes as the sector begins discussions of how to ethically mine the world's seabed as technological advances and new mapping capabilities lure companies to target the untapped, underwater resources,” the document reads.

On land, Anglo American's initiative to roll out an "eDNA" data transfer commitment, becoming the first mining company to make such a pledge, is also generating material positivity. The impact of this program is enhanced by the fact that Anglo started sharing data with eBioAtlas, an initiative to combat extinction by using DNA technology to create a global atlas of the state of life in rivers and wetlands of world importance.

In Alva's view, ArcelorMittal is also gaining positive material impact from its 2020 sustainability report, where it announced the development of a potato-based, biodegradable dust suppressant that can reduce secondary sinter dust emissions by more than 80% when applied as a foam.

"As more instantly recognizable material issues – such as greenhouse gas emissions or energy management – continue to drive material positivity, less visible issues, like biodiversity, are yielding opportunities for companies to take the lead," the report reads.

Also leading in biodiversity is Newcrest, after the company announced over \$100,000 in funding support for the construction of a rescue and breeding facility for conserving endangered kangaroos at the Port Moresby Nature Park in Papua New Guinea.

Energy management is another sector where miners are performing well, with Rio Tinto taking the lead as it partners with Schneider Electric to develop digital platforms, technologies and solutions to be used across its supply chain, driving improved energy efficiency and decarbonization.

Alcoa, on the other hand, obtained a standard certification for energy management after committing the Deschambault aluminum smelter to "improve its results through the efficient management of all forms of energy."

Emissions control generates mixed results

For the most part, mining companies' performance is improving when it comes to GHG emissions, according to Alva's report.

Barrick Gold's decision to raise its GHG target to 30% from 10%, pledging to achieve net-zero carbon emissions by 2050 following pressure from investors for climate change initiatives, is one of the main positive drivers.

Next to Barrick's pledge is South32's decision to reiterate its commitment to the Paris Agreement

objectives, announcing a target to half Scope 1 and 2 operational emissions by 2035.

But not everyone is passing with flying colours. ArcelorMittal is being blasted by the environmental lobby group Centre for Environmental Rights, whose members say the company is failing to respect environmental laws that impact air quality standards.

In Australia, on the other hand, environmental groups are protesting the New South Wales planning commission's approval of Glencore's Mangoola coal mine. The activists say they are concerned about air quality and emissions from the operation.

Valentina Ruiz Leotaud | August 15, 2021

➤ Scientists develop low-cost, graphene-based method to remove uranium from drinking water



Water sampling. (Reference image from Pxfuel).

A research team at the Massachusetts Institute of Technology has developed a highly efficient method for removing uranium from drinking water.

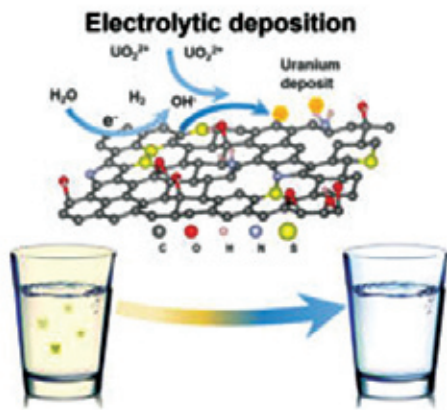
In a paper published in the journal *Advanced Materials* the MIT group together with colleagues from the Argonne National Laboratory, the University of Tokyo and National Chiao Tung University, tested the idea of applying an electric charge to graphene oxide foam to capture uranium in solution, which precipitates out as a condensed solid crystal.

"Within hours, our process can purify a large quantity of drinking water below the EPA limit for uranium," Ju Li, one of the study co-authors, said in a media statement.

Earlier research has shown that electrically charged carbon fibre could filter uranium from water, however, results from those tests were partial and imprecise.

But after investigating the behaviour of graphene foam used for lithium-sulphur batteries, Li and her team found

that the physical performance of this foam was unique because it has the ability to attract certain chemical species to its surface.



(Graph courtesy of MIT).

The work basically consisted of transforming graphene foam into the equivalent of a uranium magnet. By sending an electric charge through the foam, splitting water and releasing hydrogen, the researchers were able to increase the local pH and induce a chemical change that pulled uranium ions out of the solution.

They then found that the uranium would graft itself onto the foam's surface, where it formed a never-before-seen crystalline uranium hydroxide. On reversal of the electric charge, the mineral, which resembles fish scales, slipped easily off the foam.

According to Li, every time the uranium filtration process is used, the foam can capture four times its own weight of uranium and can achieve an extraction capacity of 4,000 mg per gram, which is a major improvement over other methods.

"We've also made a major breakthrough in reusability because the foam can go through seven cycles without losing its extraction efficiency," Li said.

The graphene foam functions as well in seawater, where it reduces uranium concentrations from 3 parts per million to 19.9 ppb, showing that other ions in the brine do not interfere with filtration.

Given these results, the team believes its low-cost, effective device could become a new kind of home water filter, fitting on faucets like those of commercial brands.

"Some of these filters already have activated carbon, so maybe we could modify these, add low-voltage electricity to filter uranium," Li said.

Besides looking into commercial applications, the researchers are also investigating the possibility of modifying the filter to be selective for other heavy metals such as lead, mercury, and cadmium.

The inspiration

Before focusing on developing the filter, Li and his colleagues were looking to find better approaches to environmental cleanup of heavy metals from mining sites.

However, after reviewing documentation from the U.S. Geological Service and the Environmental Protection Agency, the scientists realized that taking a deeper look at uranium water contamination was urgent.

They found that there are unhealthy levels of the radioactive metal moving into reservoirs and aquifers from natural rock sources in the northeastern United States, from ponds and pits storing old nuclear weapons and fuel in places like Hanford, Washington, and from mining activities in many western states.

A concrete example is that of High Plains and Central Valley aquifers, which supply drinking water to 6 million people and which, together with other sites, show uranium concentrations close to or above the EPA's recommended ceiling of 30 parts per billion — a level linked to kidney damage, cancer risk, and neurobehavioral changes in humans.

Valentina Ruiz Leotaud | August 12, 2021

➤ Most miners are falling short of carbon cuts needed for UN goal

The mining industry is falling short on cutting greenhouse-gas emissions enough to limit global warming, even after stepping up efforts to help combat climate change.

Only 11 out of 46 metal and mining companies analyzed by Bloomberg Intelligence have carbon-reduction targets that match levels needed for the United Nations' goal of limiting global warming to 2 degrees Celsius (3.6 degrees Fahrenheit) above pre-industrial levels, according to a Bloomberg Intelligence report.

The group includes global giants such as Anglo American Plc and Newmont Corp., the world's largest gold producer.

Australia's Fortescue Metals Group Ltd and Sweden's Boliden AB are the leaders of the group, indicating better preparedness for a low-carbon transition and suggesting the best combination of current

(Continued on Page 36)



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ACCURATE DRILLING - VITAL INPUT FOR OPTIMUM BENCH BLASTS

M.O. SARATHY

Abstract

In excavations where blasting is used, drilling of drillholes is the first activity after site preparations. Drillhole diameter selection, its correct placement, proper depth, direction (vertical or inclined) and undesirable deviations if any during drilling, are important since they influence final blast results. Drillhole diameter ranges from as small as 32 mm to as large as 411 – 444 mm. Incorrect or irregular placement of drillholes will result in poor fragmentation, while insufficient depth commensurate to bench height will give rise to toe and humps on the floor. Excess drilling beyond sub-grade results in explosive energy getting wasted and generate cracked areas which cause oversize and drilling difficulties in the area subsequently. Various drilling technologies are briefly discussed. Merits and demerits of inclined and vertical drillholes are enumerated. Drilling crew can play a very pro-active role in blasting operations.

INTRODUCTION

Drilling precedes blasting and is a very crucial operation for the success of blasting operations. Drilling serves blasting and hence must be completely consistent with the pre-requisites of optimum blasting (Hagan⁷). Good blast outcomes are due to good drilling practices. During drilling, rock fails due to three different actions viz crushing, chipping and spalling (Anon¹). Drilling of drillholes by a drilling machine appears to be just an easy job and as a mechanical operation whose efficiency is assessed by parameters such as the penetration rate, meterage drilled per hour, drill-bit life etc. It is extremely important that the drillhole is placed where it will be most effective and not at a position convenient to the driller for placing the drill machine. The blasting engineer can take remedial actions for faulty drilling during blasting, but only to a very small extent. While vertical drillholes are extensively used in quarries and mines, inclined drillholes are widely being used as machine capability has evolved vastly.

FRAGMENTATION

Good fragmentation from the primary blast is a pre-requisite for optimizing costs in projects carrying out excavation by blasting. Good fragmentation and loose muckpile improves the efficiency of downstream functions of loading, hauling, crushing and comminution. Parameters which contribute to good blast outcomes are:

- Drillhole diameter - smaller drillholes generate smaller / finer fragments.
- Drilling accuracy - positioning (collaring), correct depth and no deviation errors.
- Proper blast geometry and blast design.
- Drillhole pattern - In line / staggered, square (S=B) or rectangular (S >B)
- Delay initiation sequence - staggered equilateral triangle pattern shot on V1 sequence.

- Explosive characteristics - density, VOD, energy (strength), consistent performance.
- Adequate priming - correct weight and size (diameter, length) of primer.
- Initiation point in drillhole - at bottom of drillhole (grade level, not in sub-grade).
- Initiator type - non electric shock tube or field programmable electronic detonators.

DRILLING



Manual drilling

Drill mounted on wheeled truck

Drill mounted on a track chassis

(Downloaded from the Internet)

The earliest method of drilling a hole in rock involved two persons, one firmly holding a steel rod with its end is shaped like a chisel and rotating it with his hands, while the other rained blows on the steel rod with a sledge hammer. Now-a-days, drillholes, also known as blastholes are drilled into the medium being blasted using compressed air operated drilling machines. Hand-held or pusher leg mounted Jack Hammers drill 32-45 mm diameter and of maximum 2.5-3m depth, while large drill rigs drill 100, 115, 165, 200, 250, 269, 311, 411 and 444 mm. Drillhole depths vary from 5-6 m and up to 55 m. Drill Rigs are wheel and crawler mounted.

Life member - MEAI (sarathymo@yahoo.com)

Drilling machines are of three types (1) Percussive (2) Rotary (3) Rotary percussive. Percussive machine drills rock by impacting a drill bit (as by a hammer) and rotation of the bit to impact new surface, while rotary drill functions by exerting a thrust on the drill bit and rotation. Percussion drills have a limitation of drilling depth viz they are capable of drilling 15-20 m deep drillholes and suitable for drilling vertical drillholes. Percussive drills use 'cross-bit' or 'button-bit' and can drill upto 200 mm diameter. Drilling accuracy is better with Down-The-Hole (DTH). Rotary drilling is presently the

dominant method for drilling large diameter drillholes (200 mm and above) of 45-55 m depth and are very effective for drilling inclined drillholes (15°-30°) in various types of strata. Rotary drills use 'drag-bit' or 'tri-cone roller bit'. Rotary-percussion is the other type. Since drillholes are drilled deep, deviations are more likely as the drill stream tends to sag due to its own weight. Compressed air or water/fluid is used as flushing mechanism for bailing out the drill cuttings in both methods. The basic concepts of various drilling technologies are briefly described below ([Atlas Copco PPT²](#)):

Type / Method	Brief description
Top Hammer (Drillhole diameter 22-140 mm)	Also known as OTH (out of the hole). In this method the drill string is impacted at the top. Impact rods transmit the impact energy while the drill pipe transmits rotation to the drill bit.
COPROD (Drillhole diameter 90-165 mm)	This is also similar to top hammer, but has the advantage of low diesel consumption and drilling accuracy / drillhole quality of DTH (down-the-hole hammer). Drill string consists of two elements viz inner impact rods and an outer drill tube which rotates the drill string.
Down-the-hole (Drillhole diameter 90-229 mm)	As the name suggests, the hammer is situated at the drill bit end and in close contact with it. This ensures minimum power loss and more efficient transfer of impact energy to the bit. DTH drilling is more accurate and also possible to drill deeper. Note: 'Reverse circulation method (RCM) is an adaptation of DTH where drill cuttings are collected in bags through an inner central tube from the hammer. This innovation is very useful in sampling / assay. Applicable for 125-165 mm drillhole diameter.
Rotary drilling Drillhole diameter 120-406 mm)	Rotary drilling has a feed system which generates a high thrust (pull down) on the drill string and rotation provided by the rotary head (an electric motor coupled to a gear box). A feed system enables the rotary head to move and down.
PARD (Drillhole diameter 251-311 mm)	PARD (Percussion Assisted Rotary Drilling) system combines low impact DTH with high feed pressure and torque of rotary system, thus delivering higher energy than what DTH or Rotary method provide on their own, resulting in higher penetration rate.

In a power point presentation, [Chiappetta⁴](#) stressed on three most important inputs for achieving good blasts - 1) 'Drilling controls', 2) 'Drilling controls', 3) 'Drilling controls'. One may feel that he was exaggerating, but he obviously knew by vast experience importance of proper drilling and hence the emphasis. Optimum bench heights for various drillhole diameters are as under:

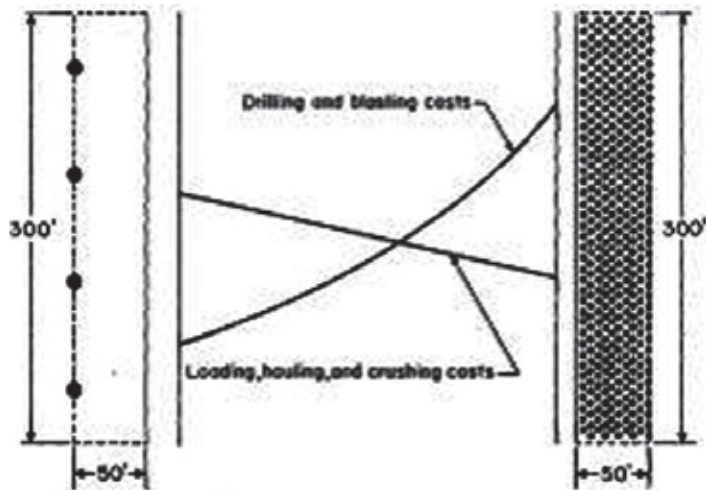
Drillhole diameter (mm)	Desired Minimum bench height (m)	Optimum bench height (m)
100 / 115	6	10 - 12
150 / 165	9	15 - 16
200	12	18 - 20
250 / 269	16	24 - 28
311 / 349	18	30 - 35
411 / 444	24	40 -55

DRILLHOLE DIAMETER

Drillhole diameter controls the resulting fragment size viz smaller the diameter, finer the average fragment size. Smaller drillholes use lesser burden x spacing, which progressively increases as diameter increases resulting in coarser fragments for the same explosive used. Drillhole diameter is selected on production requirements, bench height, capacity of loading / hauling equipment, proximity to dwellings or sensitive structures needing protection etc.

DRILLHOLE DIAMETER vis-à-vis GEOLOGY

Since smaller drillholes use lower burden x spacing, it is generally advantageous to use in jointed medium and in benches having embedded in-situ boulders. The possibilities of more explosion points (drillholes charged with explosives) within the intersecting areas between joints or penetrating embedded boulders is higher. Shaded portions will not break well (Figure-1). Figures 2 a, b depicts advantage of using smaller diameter drillholes for embedded boulders.



	Left side	Right side
Blast Area	15000 sq. ft	15000 sq. ft
Drillhole diameter	20 inches	2 inches
Number of drillholes	4	400
Burden	50 feet	5 feet
Spacing	75 feet	7.5 feet

(Dick et al⁵)

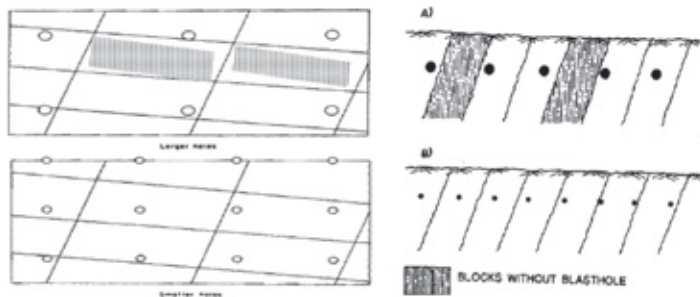
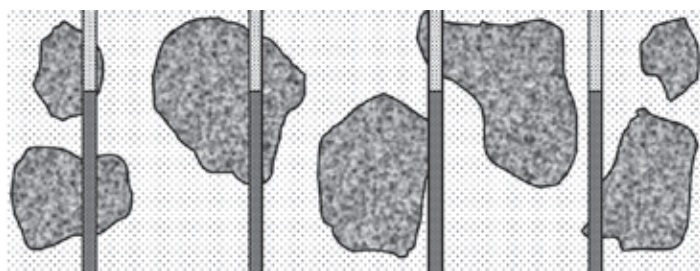


Figure 1 – Comparison between large and small diameter drillholes (Dick⁵, Tamrock¹⁰)



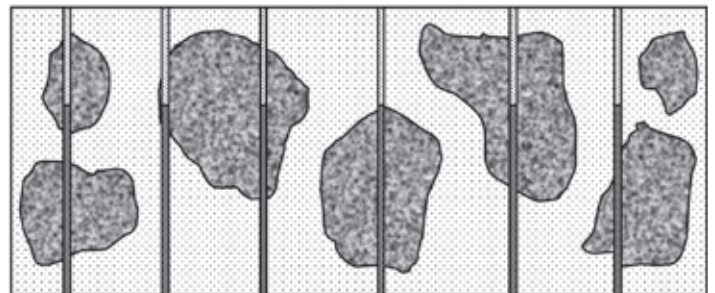
Embedded boulders in clay matrix remain unblasted as larger drillholes use higher burden x spacing and drillholes may not penetrate some boulders, remain unbroken

Figure - 2 a (adapted from Hagan⁸)

PLACEMENT / COLLARING ERRORS

Accurate placement / positioning of drillholes on the bench is very crucial for successful blast results. Holes should be drilled where required and not at a position convenient

to the driller. Drillhole positions should be clearly marked using measuring tape and identified clearly. This job may be assigned to the survey department or be carried out by the in-charge of drilling/blasting through the departmental staff. Inaccurate drilling causes excess fragmentation in areas where drillholes are close and results in coarser fragments where drillholes are drilled apart. Figures - 3 (a, c) shows correctly drilled pattern and area covered by each drillhole for in-line and staggered patterns. Areas not covered by drillhole (viz explosion point) due to faulty placement will generate coarser fragments (indicated as close mesh) in Figures - 3 (b, d).



Embedded boulders in clay matrix. Smaller drillholes use lower burden x spacing and possibility of drillholes penetrating more boulders is higher and get fragmented

Figure - 2 b (adapted from Hagan⁸)

Modern drill machines are fitted with Global Positioning System (GPS) which enables its accurate positioning remotely. On board electronics monitor various drilling parameters such as hardness (penetration rate, torque), depth and fed to a computer which in turn programmes pump trucks for charging appropriate explosives (type, density, VOD, strength, quantity).

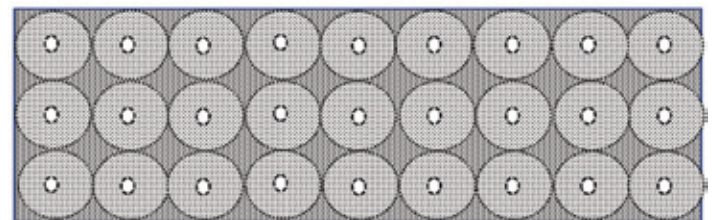


Figure 3 (a) – Correct placement of drillholes (In-line pattern)

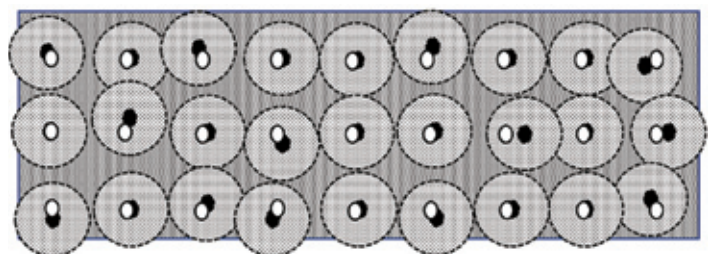


Figure 3 (b) – Incorrect / improper placement of drillholes (In-line pattern)

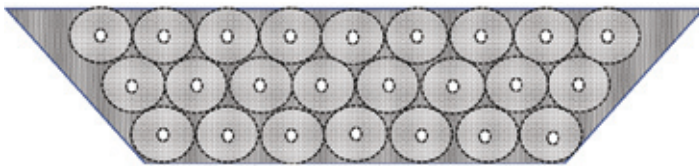


Figure 3 (c) – Correct placement of drillholes (Staggered pattern)

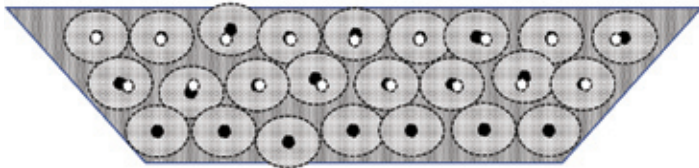






Figure 3 (d) – Incorrect / improper placement of drillholes (Staggered pattern)

-  Drillhole position as per design
-  Drillhole position as drilled
-  Area (blast) covered by drillhole
-  Area not covered by drillhole – coarse fragments likely

DRILLHOLE DEPTH

Depth to which a drillhole should be drilled in relation to bench height is important. Hard rocks require sub-grade to be drilled for ensuring that no toe is left behind after blast. Sub-grade is often not required in soft to medium hard rocks, in benches having distinct horizontal joint planes. Drillers are normally instructed to drill ‘2 or 3 rods’ depth. Individual drillhole depths must take into consideration the undulations present on the bench surface. Otherwise after blast, humps are likely to be left behind when such instructions are carried out (Figure 4 - a, b).

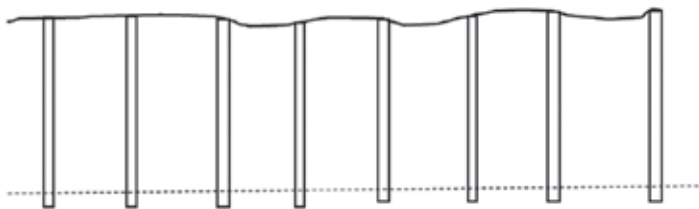


Fig 4 (a) – Fixed length drilling in undulating ground resulting in floor humps

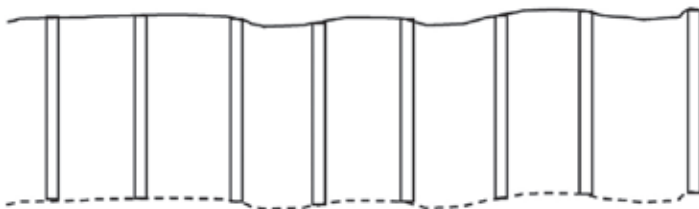
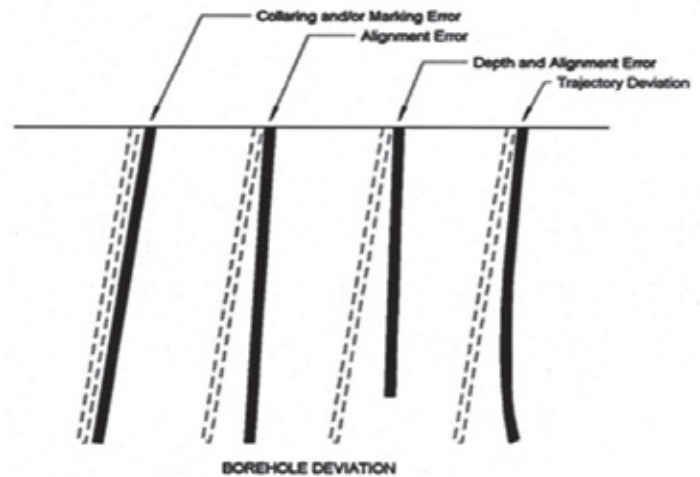


Fig 4 (b) – Drill length taking into consideration desired grade level in undulating ground

Malankhand Copper Project had adopted a good practice wherein drillhole positions were marked by the survey department, by driving a tagged metal stake for indicating drillhole position. Drillhole number and depth to be drilled (commensurate to surface and bottom RL) were painted to assist drilling crew and ensure they do not make mistakes while drilling. Also useful for assay of drill cuttings. Placing a piece of stone as marker can be disadvantageous since they can get displaced during vehicle movement, shifting of cable or other activities.

DEVIATIONS DURING DRILLING

Deviations in drillhole during drilling can significantly alter the in-situ burden x spacing. Reduced burden can cause drillhole blow-outs, flyrock, while excessive burdens can cause poor breakage, toe formation and excessive ground vibrations. Reduced spacing can cause severe crushing of rock between the drillholes, while excess spacings can cause humps to be left on the floor. Toe and humps on the floor require unproductive secondary blasting in the area, requiring moving men and machinery for safety and this results in loss of production.



(Gokhale6)

MEASURE-WHILE-DRILLING (MWD)

Drill operators can provide a wealth of information to the blasting crew on the general nature of strata through their observations during drilling. It is a good practice that the blasting crew prior to blasting, discusses with the drilling crew and ascertain presence of problem areas such as hard bands, fractures, open joints, mud seams, solution cavities etc. Measure-While-Drilling (MWD) is a feature available on drills since the seventies. It is an electronic monitoring module fitted on drills which provides continuous information during drilling such as depth drilled, penetration rate, RPM, torque and bailing velocity. It provides valuable information on the nature of strata being drilled - hard or soft and presence of weak spots by sudden changes in penetration rate. MWD

helps the driller to ensure correct drill depth and eliminates need to re-drill short ones and back-fill the excess ones. The blasting personnel can view the drill log prior to loading and appropriately charge the drillholes. Strong explosives can be placed in hard portions and inert stemming decks provided where cracks, open joints are present.

VERTICAL OR INCLINED DRILLHOLES - A DISCUSSION

Kochanowsky⁹ has explained the advantages of inclined drilling and an extract is given below: Quote...*The inclined borehole differs drastically and gives quite different results from the vertical borehole. In the latter, the explosive charge is located in the worst place, where the rock resistance against blasting is the greatest: this necessitates the use of large borehole diameter, subdrilling and the placing of expensive explosive in the bottom of the borehole....The reason why a better blasting efficiency with an inclined borehole can be expected are: (i) the rate of available explosive energy utilized for fragmentation is much higher (ii) the rock resistance against blasting at the toe of the bench is much smaller, and (iii) the part of the borehole which can be loaded with explosive is larger.....Unquote.*

The drillholes should preferably be parallel to the bench face so that burden is uniform at all portions viz crest, mid-bench and toe. This helps in breaking burden more effectively and better overall breakage. Bench face will be vertical when blasts have been carried out properly, resulting in both crest and toe burdens being equal. Many bench faces are irregular due to wrong blast design and incorrect blasting practices adopted in previous blasts, resulting in low crest burdens (due to back break at collar) and high toe burden. In such conditions, with vertical drillholes it is difficult to maintain drillholes having equal crest and toe burdens. At times drill has to be placed very close to crest to achieve desired drillhole burden, leading to less material at crest and upper bench face, resulting in blowouts, excess throw and/or flyrock. Venting will cause borehole pressure to drop and result in poor movement at the bottom and toe. Charging has to be carried out judiciously. Drilling as per design burden from crest would result in excessive toe burden and desired explosive charge concentration (kg/m) required for breaking the excess burden will not be possible with the drillhole diameter in use. Many opencast mines overseas prefer inclined drilling over vertical drillholes since the former offers better control of maintaining uniform burden (Figure-5). Theoretically, 45° inclination results in maximum trajectory (throw), but difficult to drill. Drillholes inclinations of 15°-30° are regularly used in production blasting and 30° necessarily for cast blasting operations (Bhandari³, Hagan⁸).

With inclined drilling, overbreak at crest is less (Figure-6) and hence reducing stemming length is possible. Further, bench height being the same, inclined drillhole's effective (useful)

length would be more and combinedly will accommodate more quantity of explosive, resulting in better breakage. Toe portion breaks better with inclined drilling and lesser sub-grade length is required. Inclined drilling increases throw (Kochanowsky⁹). The resulting muckpile profile is suitable for loading by front end loader. Wastage of explosive energy in sub-grade manifests as cracked zones at the bottom of the drillhole and increased ground vibrations during the blast. Reduced sub-grade causes lesser fractures / damage to the floor resulting in reduced difficulties during drilling and also reduced generation of oversize from the collar zone, when the current floor later becomes the top of an operating bench.

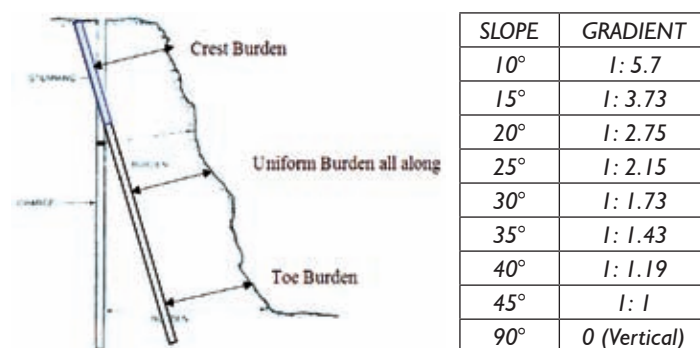


Figure 5 – Uniform burden with inclined drilling (adapted from Bhandari³)

Drilling machine technology was a limitation for inclined drilling to be carried out. While percussive drills have a depth limitation, rotary drills are capable of drilling large diameter inclined drillholes of 45-55 m depth. With inclined drilling, collapse of drillhole can occur in soft, incompetent medium. In such areas, vertical drilling is the only option. Inclination beyond 30° is not recommended as maintaining alignment is difficult. As the drillhole depth is increased, possibilities of deviation are more due to sagging of the drill stream by its own weight and higher drill bit wear and tear. Also, difficulties in charging, packaged explosives.

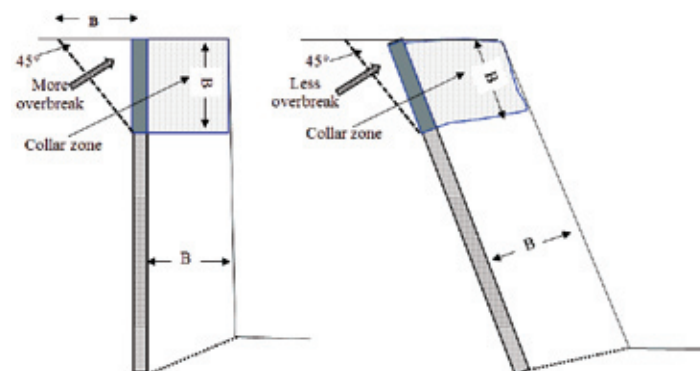


Figure 6 – Crest and toe breakage zones are lower with inclined drillholes compared to vertical drillholes - less overbreak and less floor damage (adapted from Hagan⁸)

Breakage due to the reflected stress wave is much more pronounced with inclined drillholes as compared to vertical drilling, Utilization-effectiveness of the reflected (tensile) stress wave is maximum at a drillhole angle of 45° (portions shown by concentric arcs) . Wastage is maximum with vertical drillholes. Better toe breakage and lower crest damage can be realized with the use of inclined drillholes (Kochhanowsky⁹) – (Figure 7- vertical, 22.5° and 45° inclinations).

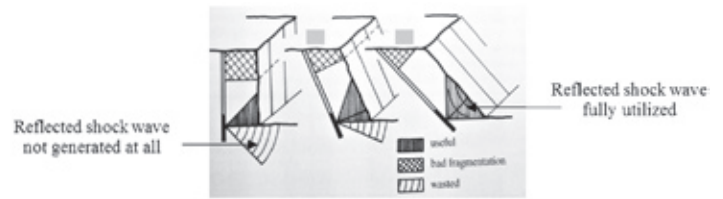


Figure 7 – Crest breakage and energy utilization at toe with different drillhole inclinations (Original concept by Kochanowsky⁹, sketch adapted from Tamrock¹⁰)

VERTICAL DRILLHOLES	
<p>Advantages</p> <ul style="list-style-type: none"> • Collaring and aligning drillhole easier • Easier to drill • Superior drilling accuracy • Lower drillhole deviations 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Crest burden less, toe burden more in inclined bench face • Higher backbreak in collar area • Toe formation due to high bottom burden. Cascading-cumulative effect higher • Shock energy wastage at drillhole bottom • Loose rock fall risk higher in vertical face
INCLINED DRILLHOLES	
<p>Advantages</p> <ul style="list-style-type: none"> • Uniform crest and toe burden maintained - easy to drill parallel to face profile • Lower stemming length. Reduced backbreak in collar area. • Region of 'reflected stress wave' higher resulting in better breakage at toe • Possibility of toe formation lower. Each drillhole/row act independently. No cascading-cumulative effect • Higher throw-displacement of broken rock resulting in lower muckpile, suitable for front-end loaders. • Loose rock fall less likely from inclined bench face. Increased safety to personnel working on bench below 	<p>Disadvantages</p> <ul style="list-style-type: none"> • Collaring and aligning drillhole difficult • Drillhole collapse in soft, unconsolidated strata • Inconvenient for charging packaged explosives • Difficult to drill. Difficult to maintain drill angle and direction • Only rotary drilling possible • Higher drillhole deviations likely due to sagging of drill steel string's own weight • Wear and tear of drill steel string higher due to reduced flushing efficiency, exerting higher torque and feed force. Machine fatigue high

CONCLUSIONS

In blasting operations, correct placement and accurate drilling of blastholes is very crucial for achieving desired blast results. Proper selection of drillhole diameter commensurate to fragmentation requirements is the first step. Drillholes have to be placed on the bench as required by design, without any collaring errors and not as per convenience of the driller in placing the drilling machine. Incorrect placement results in variations in fragmentation. Drillholes have to be drilled to the correct depth commensurate to bench height and sub-grade as per rock strength and structure. Medium hard and hard rocks definitely require sub-grade to be drilled to the required extent as per blast design. Soft rocks and strata with distinct horizontal bedding planes invariably do not require sub-grade to be drilled. Drillhole deviations occur

as drilling depth increases and has to be monitored. Inclined drillholes, though difficult to drill, has many advantages vis-s-vis vertical drillholes. With inclined drilling lesser sub-grade and lower stemming can be used which results in less damage to floor and crest respectively. Inclined drilling negates cascading-cumulative effect of toe formation as each inclined drillhole-row acts independently, unlike vertical drillholes. Smoother, sounder walls can be achieved with inclined drillholes. The resulting inclined bench face creates safer working conditions against loose rock fall. Drillhole inclination is usually in the range of 15°-25° but should not exceed 30° as it would be difficult to maintain accuracy, may cause drillhole wall collapse in soft, fractured,

(Continued on Page 26)



ERM Group Companies:

R.Praveen Chandra (Mine Owner and Entrepreneur)

E. Ramamurthy Minerals & Metals Pvt. Limited

Prakash Sponge Iron & Power Pvt. Limited

Benaka Minerals Trading Pvt. Limited

Codeland Infosolutions Pvt. Limited

Alfa Minerals



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CORPORATE INSOLVENCY RESOLUTION PROCESS; FATE OF STATUTORY DUES

Ajay Kumar Singh Gautam*

Abstract

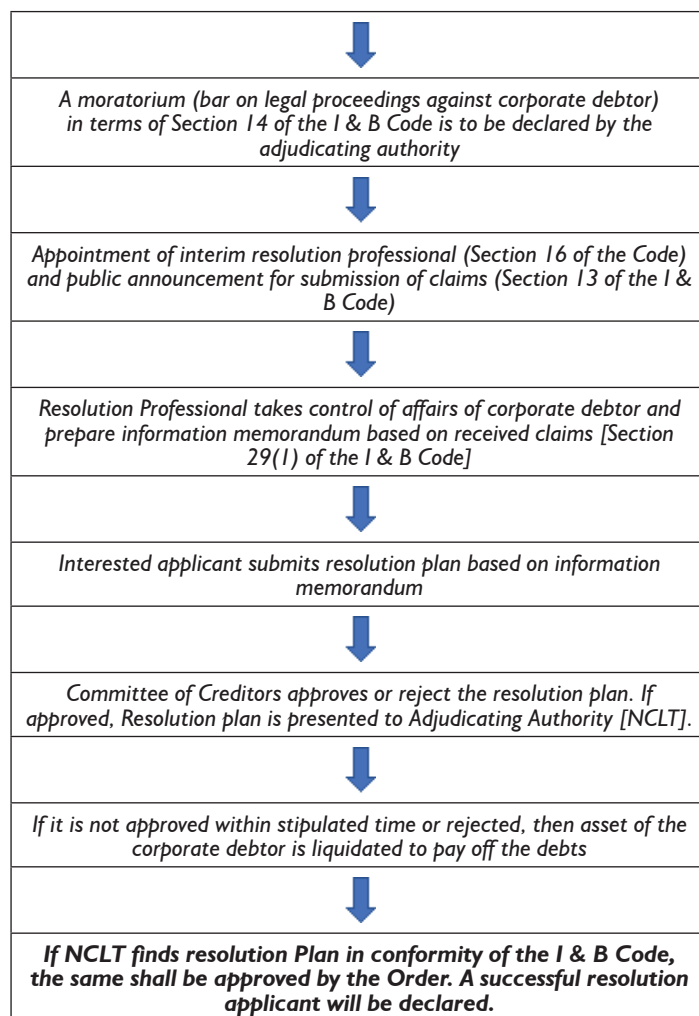
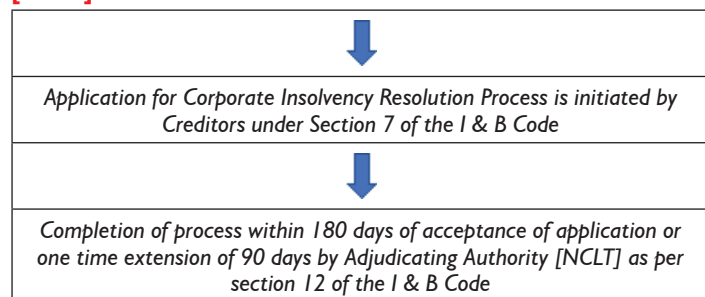
The Insolvency and Bankruptcy Code, 2016 have played an important role in addressing the problem of the sick units or Non-Performing Assets (NPAs) in a time bound manner. It has recognized the National Company Law Tribunal (NCLT), which is constituted under Section 408 of the Companies Act, 2013 as the Adjudicating authority for the purpose of insolvency resolution as well as the liquidation of corporate persons. One of the major challenges in the sphere of Insolvency Law is the status and position of statutory dues. The question which is asked time and time again is under which category of debts do statutory dues fall under? The answer to this plays an importance role in determining the rank the debts hold at the time of repayment or liquidation. On 20th March 2019, National Company Law Appeal Tribunal (NCLAT) had clarified that statutory dues come under the ambit of operational debts. The way of pursuing claims of statutory dues by the concern authority is also vital in extracting such dues from the Corporate Debtor.

Keywords: The Insolvency and Bankruptcy Code, 2016, National Company Law Tribunal, National Company Law Appeal Tribunal, Corporate Insolvency Resolution Process, Resolution Professional, Resolution Plan, Corporate Debtor, Statutory dues.

Introduction

The Insolvency and Bankruptcy Code, 2016 (hereinafter referred as I & B Code, 2016) lays down different resolution procedures for corporate individuals as well as individuals and partnership firms to either sell the NPAs or to liquidate them in a timely manner. It aims to maximize the value of the insolvent entity to promote entrepreneurship and credit availability while balancing the interests of the stake holders. Here Stake holders may be Department of Mines and Geology (hereinafter referred as DMG) or any other department in the State Government or any tax authorities in the Central Government. DMG's in various State Government issues demand under Section 21(5) of MMDR Act 1957 or any other penalty, which comes under 'statutory dues'. After making an application in the National Company Law Tribunal (hereinafter referred as NCLT), the Corporate Insolvency Resolution Process (hereinafter referred as CIRP) is initiated. Brief about the process is illustrated below:

CORPORATE INSOLVENCY RESOLUTION PROCESS [CIRP]



*Deputy General Manager (Mining), MSPL Limited

It is worth mentioning that, since the inception of I & B Code, 2016, it has been easier for the financial creditor, operational creditor or corporate itself to recover the amount from the debtor. This is because the adjudicating authority i.e. NCLT has been vested with wide powers to ensure that there is balance in the interests of corporate debtor and creditors.

After approval from NCLT, resolution plan becomes binding on Corporate Debtor, its employees, members, creditors, guarantors, and other stakeholders involved in the resolution plan. After the approval, successful resolution applicant takes over the business of corporate debtor.

Key Definitions from I & B Code

- A. Section 3 (8) defines “corporate debtor” as corporate person who owes a debt to any person.
- B. Section 3 (10) defines “creditor” as any person to whom a debt is owed and includes a financial creditor, an operational creditor, a secured creditor, an unsecured creditor and a decree holder.
- C. Section 5 (20) defines “operational creditor” as a person to whom an operational debt is owed and includes any person to whom such debt has been legally assigned or transferred.
- D. Section 5(21) defines “operational debt” as a claim in respect of the provision of goods or services including employment or a debt in respect of the repayment of dues arising under any law for the time being in force and payable to the Central Government, any State Government or any local authority.”

Overriding Effect and waiver of Statutory Dues and its Impact on Public Money

I & B Code, 2016 has an overriding effect. Section 238 provides that the Code will prevail in case of inconsistency between two laws. I & B Code, 2016 faces another impediment, which is extremely non-technical in nature by way of the lax and careless attitude of statutory authorities and the misuse of the laws to find loopholes by the Companies. Through Insolvency process, statutory authorities can receive huge sums of money which can be greatly beneficial to the general public. But unfortunately, various cases show that certain well-placed companies are trying to use this law for hostile takeover of major stressed Companies, while aggravating the situation of non-payment of bank loans, refusing to pay genuine dues of the Operational Creditors, and most importantly trying to rob the Government of their statutory dues through this process. Analysis of such case is made as follows:

Case Analysis

An Order is passed by the Hon’ble Supreme Court on 13th April 2021 in the matter of Ghanshyam Mishra and Sons Pvt Ltd (hereinafter referred as GMSPL) Vs. Edelweiss

Asset Reconstruction Company Ltd (hereinafter referred as EARCL) which will have greater consequence in coming days with respect to statutory dues on company going through Corporate Insolvency Resolution Process.

Brief facts about the case

1. Orissa Manganese and Minerals Ltd. (hereinafter referred as OMML) is having business of iron ore mining in the State of Jharkhand and Odisha and is a corporate debtor in the present case.
2. The Corporate Insolvency Resolution Process was initiated by the State Bank of India under Section 7 of the I & B Code, 2016 before NCLT, Kolkata.
3. Resolution Professional (RP) was appointed with consent of CoC and he invited Expression of Interest (EOI) with 180 days’ time period.
4. Initial period was expired and again time was extended for 90 days. At this time three company responded i.e. EARC (Respondent), GMSPL (Appellant) and Orissa Mining Pvt. Ltd.
5. CoC in the 11th meeting dated 13.04.2018 ranked GMSPL as H-1 bidder.
6. EARC challenged the decision of Resolution Professional for not admitting its claim as it has provided take out facility to sister concern of OMML i.e. Adhunik Power and Natural Resources Limited (hereinafter referred to as APNRL).
7. One more application was filed by District Mining Officer, Department of Mines and Geology, Government of Jharkhand challenging non admission of its claim of **93.51** crores and **760** crores which was statutory dues in terms of demand under Section 21(5) of MMDR Act, 1957 and other taxes.
8. After considering all the applications, NCLT, Kolkata by Order dated 22.06.2018 approved the Resolution Plan of GMSPL and rejected claims of others.
9. Aggrieved by NCLT Order, EARC preferred appeal before National Company Law Appellate Tribunal (hereinafter referred as NCLAT), New Delhi. Its claim was that Resolution Professional has not included it in Committee of Creditors as it was Corporate Guarantor for APNRL.
10. One Mr. Deepak Singh also filed appeal as an employee because his salary was not paid by APNRL. His claim was that his salary in the tune of Rs. 17 lakhs are due as an operational creditor.
11. NCLAT, New Delhi by its Order dated 23.04.2019 held that Resolution Plan of GMSPL is justified as it is better than of EARC and there is no illegality in accepting Resolution Plan of GMSPL.
12. However, NCLAT observed that employee like Deepak Singh can move to different forum like labour courts etc. for their claims of salary and other dues.

13. Even though Department of Mines and Geology, Government of Jharkhand has not preferred appeal, NCLAT by its Order dated 23.04.2019 held that dues to State Government comes under operational debt under Section 5(20) of I & B Code, 2016 and shall be payable, but since Government of Jharkhand has not preferred any appeal against NCLT Order and hence no order is passed.
 14. GMSPL appealed in Hon'ble Supreme Court against the observation made by NCLAT, New Delhi that claims which are not part of Resolution Plan could be agitated before another forum. And hence Civil Appeal No. 8129/2019 was filed in Supreme Court.
4. After approval by adjudicating authority, no surprise claim should be flange on successful Resolution Applicant. The legislative intent behind this is to freeze all the claims so that resolution applicant starts a fresh and not burdened with any surprise claims. If surprise claims are not prevented, the very calculations on the basis of which resolution applicant submits its plan will go out of order and would become unworkable.
 5. Statement of Object and Reasons of 2019 amendment made in 2019 entails that amendment is declaratory/clarificatory in nature and hence apply retrospectively.
 6. District Mining Officer, DMG Jharkhand fails to provide any document in support of his claim. Resolution Professional sought clarification from District Mining Officer (DMO) regarding its claim made in Form 'B' since information supplied was sufficient. It was found that despite the said request, DMO has failed to place the record. NCLT therefore rejected the application of DMO with cost of Rs. 1.0 lakh. Here laxity of the DMO is evident.
 7. Finally Supreme Court held that observation of NCLAT regarding adjudication of employees claims on another forum is beyond scope of NCLAT and in violation of Section 31 of I&B Code, 2016.

Question framed by the Hon'ble Supreme Court

Considering facts mentioned above, Hon'ble Supreme Court framed following questions which need to decide:

1. Whether any creditor (Central/State Government or any local Authority) is bound by the Resolution Plan once it is approved by adjudicating authority under Section 31(1) of Insolvency and Bankruptcy Code, 2016?
2. There was an amendment in Section 31 of IBC in 2019 that the resolution plan approved by the Adjudicating Authority shall also be binding on the Central Government, any State Government or any local authority to whom a debt in respect of payment of dues arising under any law for the time being in force, such as authorities to whom statutory dues are owed, including tax authorities; As to whether the amendment to Section 31 by Section 7 of Act 26 of 2019 is clarificatory/declaratory or substantive in nature?
3. Whether after approval of Resolution Plan by the Adjudicating Authority, a creditor (Central/State Government or any local Authority) is entitled to initiate any proceeding for recovery of any dues from Corporate Debtor, which are not part of the Resolution Plan?

Consideration by the Court

After hearing argument and submission made by all the parties Hon'ble Supreme Court considered the following points:

1. Dominant object of I & B Code, 2016 is to revive corporate debtor and make it running.
 2. Resolution Professional gathers various claims through public notice and based on claims prepare Resolution Memorandum. Applicants prepares Resolution Plan based on this Resolution Memorandum under Section 29 of the I&B Code, 2016.
 3. The resolution plan submitted by EARC was based on the information memorandum submitted by Resolution Professional wherein, it was specifically clarified, that the claims of EARC were not admitted by Resolution Professional. Hon'ble Supreme Court held that claim of EARC is not justified and hence rejected.
1. That once a resolution plan is duly approved by the Adjudicating Authority under subsection (1) of Section 31, the claims as provided in the resolution plan shall stand frozen and will be binding on the Corporate Debtor and its employees, members, creditors, including the Central Government, any State Government or any local authority, guarantors, and other stakeholders. On the date of approval of resolution plan by the Adjudicating Authority, all such claims, which are not a part of resolution plan, shall stand extinguished.
 2. 2019 amendment to Section 31 of the I&B Code is clarificatory and declaratory in nature and therefore will be effective from the date on which I&B Code, 2016 has come into effect meaning thereby 'other stakeholders' as provided in sub-Section (1) of Section 31 of the I&B Code includes State Government and Central Government or any local authority to whom a debt is owed, including the statutory dues.
 3. Consequently, all the dues including the statutory dues owed to the Central Government, any State Government, or any local authority, if not part of the resolution plan, shall stand extinguished and no proceedings in respect of such dues for the period prior to the date on which the Adjudicating Authority grants its approval under Section 31 could be continued.

In the result, Hon'ble Supreme Court has answered the questions framed as under

Conclusion

By the Order of Hon'ble Supreme Court in GMSPL, claims of DMG, Jharkhand for more than Rupees 800 crores, dues for illegal mining, stand extinguished as it was not part of Resolution Plan approved by NCLT, Kolkata. Though the Insolvency and Bankruptcy Code, 2016 is a landmark legislation bringing about a huge change in Insolvency Law, there are various amendments and clarifications that must be made. To make the Code as effective as possible in the real sense, many points of contentions need to be addressed out by the Insolvency and Bankruptcy Board of India or any other authority. Few suggestions are as follows:

1. One of them is how overdue statutory dues and fees are to be handled during the Corporate Insolvency Resolution Process. Companies and corporations use the society's resources to establish and make a name for themselves. At the time of insolvency, where they lose the public's trust, it is pertinent that they should make up for it. This can be done by paying the government its dues timely.
2. However, in the past, there have been many cases where statutory dues are waived off by the Resolution Professional, the acquirer and also the courts and tribunals. These waivers impact the government budget and if realized, can be a major source of government income.
3. Stake holders like DMG's must present their claims in a legal and logical way before Resolution Professionals so that their claims become part of Information memorandum and finally their claims reflect in Applicant's Resolution Plan. If there is any negligence in pursuing claims or making response on the part of creditors/authorities, they may squander huge amount.
4. Statutory Authorities as operational creditors are not being very high on the priority order either under the resolution plan or for distribution of assets under the Code and such creditors generally receive only a fraction of their outstanding dues. One of the possible amendments could be that by elevating the status and rank of statutory authorities in the Committee of Creditors.
5. A separate department should be established inside the offices of State's DMG and other local authorities to ensure the compliance of CIRP and also in repayment of the outstanding taxes, debts, penalty and fees.
6. The resolution applicants along with the corporate debtors must be diligent with the intimation of initiation of CIRP, and approval of resolution plan, to all creditors including the statutory authorities, to avoid any unpleasant issue of notices or claims,
7. It is also important that statutory authorities like State's DMG play a much bigger role in the entire process.

Acknowledgements

The views expressed in this paper are those of the authors and not necessarily of the institute to which he belongs.

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Supreme Court of India; Civil Appeal No. 8129/2019; Ghanshyam Mishra and Sons Pvt Ltd (GMSPL) Vs Edelweiss Asset Reconstruction Company Ltd (EARCL, Insolvency and Bankruptcy Code, 2016, Insolvency and Bankruptcy (Amendment) Code, 2019.

(Continued from Page 20)

unconsolidated strata, causes more drill bit wear and difficulties during charging explosives especially packaged products. Cast blasting operations necessarily use drillholes inclined at 30°. The drilling machine crew can play a very proactive role in the operations by sharing their observations during drilling with the blasting team. Their inputs are crucial to the blasting crew for taking appropriate corrective actions during charging of drillholes with explosive such as presence of hard/soft bands, open joints, wide cracks, vughs, solution cavities etc. GPS and MWD are tools with which blasting efficiency can be enhanced.

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MEAI 2020 AWARDS

MEAI Lifetime Achievement award

1. Shri. Mohommad Fasihuddin, Past President, MEAI and GM TATA Steel.
2. Shri P.R. Tripathi, Former CMD, NMDC Ltd . MEAI Awards 2020

MEAI - Sitaram Rungta Memorial Award For the best paper presented on the Mining related issues.	<ol style="list-style-type: none"> 1. Mr.Chand Chandana, Former CEO(mines) Bundi Silica Group 2. Pritam Kumar Sinha Dy.Executive Engineer, Neyveli Lignite Corporation Ltd.
MEAI - NMDC Award For the meritorious service rendered to the Iron Ore Industry	Dr. Shobana Dey Senior Principal Scientist, Processing Division CSIR- National Metallurgical Laboratory, Jashedpur-jharkhand. And Associate-Professor, AcSIR, NEW DELHI
MEAI - Smt. Bala Tandon Memorial Award For the contribution in improving the Ecology and Environment	Mr. Suryanshu Choudhury Ambuja Cements Ltd (A LARGE – HOLCIM GROUP COMPANY) as Sr. Manager (Corporate Mineral resources).
MEAI – Abheraj Baldota Memorial Gold Medal Award (Mining Engineer of the year) For Significant Contribution to the Mining Industry.	Shri L.S.Shekawat Director operations (Mines and Smelters) HINDUSTAN ZINC LIMITED (GROUP COMPANY OF VEDANTA RESOURCES) Udaipur.
MEAI – Abheraj Baldota Memorial Gold Medal Award (Young Mining Engineer of the year) For Significant Contribution to the Mining Industry.	Shri. Ashis Dash FEDERATION OF INDIAN MINERAL INDUSTRIES, Joint Secretary General & CEO (Sustainable MINING Initiative), NEW DELHI.
MEAI - Smt. Gullapalli Sarala Devi Memorial Award (Lifetime achievement by a Mining Engineer) For Life long contribution to the Mining Industry.	Shri. Deepak Vidyarthi Former Executive Director of NMDC.
MEAI - Master Tanay Chadha Memorial Geologist Award For significant Contribution in Mineral Exploration and Mine Planning	Dr. Yamuna Singh Centre of Earth, Ocean and Atmospheric Sciences , University of Hyderabad, PO central University , Gachibowli, HYD.
MEAI - Dr M.L.Jhanwar Award for Best Article in MEJ For Presenting Best paper on Eco- Friendly Mining	Shri Chand Chandana Former CEO(mines) Bundi Silica Group
Smt.Kiran Devi Singhal Memorial Award For Outstanding Contribution in Development, conservation of mineral and Environment in Metalliferous Mines.	Dr. D.S.Rao Chief Scientist , (Professor & Dean Physical Science AcSIR) CSIR-Institute of Mineral and Materials Technology, Bhubaneswar, Odisha.
MEAI – SCCL Coal Award – Mining Engineer For the Meritorious service rendered to the coal Industry.	Dr. Niroj Kumar Mohalik Principal Scientist , Mine Ventilation Division , CSIR-CIMFR Dhandbad, Jharkhand, India.

MEAI- Service Excellence Award

1. Shri. P.K.Satpathy, Director Production, M/s. NMDC Ltd. and National Council Member
2. Dr. P.V.Rao , Co-Chairman NACRI, India and Editor MEJ
3. Shri. B.R.V.Susheel Kumar, Director, Mines and Geology, Govt. of Telangana and former Chairman Hyderabad Chapter
4. Dr.A. Srikanth, Director, Master Geotech Services and former Chairman Kolkata chapter
5. Shri. A.K.Sarang, Former Executive Director, UCIL and former National Council Member
6. Shri. T.N.Gunaseelan , Director DMT Consultants and National Council Member
7. Shri. P.K.Satija, Chief Regulatory Affairs, TATA Steel and Chairman New Delhi Chapter
8. Shri. Deepak Gupta, Former Dy.DGMS, and National Council Member
9. Shri. A.K.Garg, Former General Manger and Former Chairman Ahmedabad Chapter
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17. Bidyut Chakraborty, Partner KPMG, and National Council Member
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21. M.C.Thomas, MD of TATA Steel Mining Limited, and Chairman Bhubaneswar Chapter
22. Dr. Abani Samal, Owner and Principal of Geo Global, LLC and Chairman International Affairs of MEAI

Best Chapter and other Awards

MEAI Best Chapter Award	Bellary Hospet Chapter
MEAI Active Chapter Award	Bhubaneswar chapter
MEAI Active Chapter Award	Bangalore Chapter
MEAI Active Chapter Award	Hyderabad Chapter
MEAI Active Chapter Award	Ahmedabad Chapter
MEAI Active Chapter Award	Bombay Chapter
MEAI Active Chapter Award	Visakhapatnam Chapter
MEAI Active Chapter Award	Rajasthan Chapter - Udaipur
MEAI Active Chapter Award	Rajasthan Chapter - Jodhpur
MEAI Active Chapter Award	Belgaum Chapter
Special Award for Celebration of Indian Mining Day	Hyderabad chapter
Special Award for Plantation	Veraval Porbandar Chapter
Special award for hosting council meeting	Hyderabad Chapter
Special award for hosting council meeting	Bellary Hospet Chapter
Special Award for membership Development	Shri. Deepak Behera Secretary, Bhubaneswar Chapter
MEAI - Life/Institutional membership Development Award	A.K.Kothari, Past President. MEAI
Special Award for enrolling maximum Annual members	Veraval - Porbandar Chapter
Special Award for Revival of the Chapter	Dr. Hanumanth Rao, Visakhapatnam Chapter

1. Council meeting Photos



Members of MEAI observing silence to Pay homage to the departed MEAI Members during 8th Council meeting



Sri. Madhusudhana, President incoming, Sanjay Kumar Pattnaik President, outgoing, Sri. O. P. Gupta Vice President-III, Sri. M.Narsaiah, Secretary General observing silence to pay homage to departed MEAI members during 8th council meeting on 20-8-2021, at Hotel Hampi International, Hospet



Sri. K.Madhusudhana , President (incoming) Sri. Sanjay Kumart Pattnak, President outgoing (addressing), Sri. M.Narsaiah , Secretary General and Sri. O.P.Gupta, Vice President -II during 8th Council meeting on 20-8-2021 at Hotel Hampi International, Hospet.

2. Inauguration



Sri. K.Madhusudhana, after assuming charge as President MEAI with the members of BH chapter.



Sri.K.Madusudhana, taken charge as 32nd President of MEAI, addressing during 48 AGM held on 20-8-2021 at Hotel Hampi International, Hospet

3. AGM meeting



Sri. K.Madhusudhana, President MEAI and Sri. Sanjay Kumar Pattanaik, outgoing President honored with Karnatak Traditional Attire. In the picture, from left, Sri. M.Narsaiah SG, Sri. Prabhakar Reddy, chairman BH chapter, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet and Sri. O.P.Gupta, Vice President -II.



Honoring Sri. O.P.Gupta, Vice President -II with Shawl and garland. From left, Sri. K.Prabhakar Reddy, Chairman BH chapter, Sri. M. Narsaiah, SG, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet, Sri. K.Madhusudhana, President MEAI, Sri. S.K. Pattanaik, outgoing President



MEAI members taking pledge on oath during 48th AGM held at Hospet. In picture front row, Sri. Meda Venkataiah, past President Sri. V.D.Rajagopal, past president and Dr. C.H.Rao, Chairman Visakhapatnam chapter.



Sri. Sanjay Kumar Pattnaik, Outgoing President administering the Pledge on Oath of MEAI to the newly elected council members during 48 AGM held on 20-8-2021, at Hotel Hampi International, Hospet.



Picture of Physical and Virtual meeting of 8th Council Meeting & 48 AGM held on 20-8-2021.

4. K.Madhusudhana journey



Sri. K.Madhusudhana, 32nd President of MEAI Elect being honored with garland, bouquet. In the picture Sri. S.K.Pattnaik, outgoing President, Sri. O.P.Gupta vice President-II, Sri.K.A. Mahaveer, Dy. Director of Mines & Geology Hospet and Sri. M.Narsaiah SG.



Sri. K.Madhusudhana President, MEAI presenting his journey to reach MEAI Presidenship



Sri. K.Madhusudhana, is being honored with bouquet by members from Belgaum chapter on assuming charge as 32 President MEAI.



Sri. Sanjay Kumar Pattnaik outgoing President honoring Sri.K.Madhusudhana, incoming President MEAI with MEAI President Medal and congratulating him, on 20-8-2021, during AGM at Hospet.



Sri. K.Madhusudhana, President MEAI with his family .



Sri. K.Madhusudhana, president MEAI and Sri. S.K.Pattnaik, President outgoing with the members of newly elected council members.

5. Awards



Sri. M.Fasihuddin, Past president honored with MEAI Life time Achievement Award, Sri. S.K.Pattnaik, Past President reading the citation to be present to Sri. Fasihuddin.



Sri. P.R.Tripathi, former CMD, NMDC honored with MEAI Life time Achievement Award, Sri. Deepak Vidyarthi, briefing about the achievements of Sri. P.R.Tripathi.



Sri. A.R. Vijay Singh, Council Member receiving Service excellence award from Sri. S.K.Pattnaik, Past President. In picture Sri. K.madhusudhana, President MEAI, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet sri. O.P.Gupta, Vice President -III



Sri. Dhanajay Reddy, Chairman Bangalore Chapter receiving Service Excellence Award from Sri. S.K.Pattnaik, Past President. In picture Sri. K.Madhusudhana, President MEAI, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet and sri. O.P.Gupta, Vice President -III



Sri. Yamuna Singh receiving Master Tanay Chadha Memorial Award for the year 2020 from Sri. K.Madhusudhana, President MEAI, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet and sri. O.P.Gupta, Vice President -II



Sri. Deepak Vidyarthi receiving Gullapalli Sarala Devi Award for the year 2020 from Sri. S.K.Pattnaik, Past President, Sri. K.Madhusudhana, President Elect MEAI, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet and Sri. O.P.Gupta, Vice President -II



Sri. Pritam Kumar Sinha receiving Sitaram Rungta Memorial Award for the year 2020 from Sri. S.K.Pattnaik, Past President, Sri. K.Madhusudhana, President Elect MEAI, Sri.K.A. Mahaveer, Dy.Director of Mines & Geology Hospet and sri. O.P.Gupta, Vice President -II



Dr. C.H.Rao, Chairman Visakhapatnam Chapter receiving Special Award for Revival of Visakhapatnam Chapter from Sri. S.K.Pattnaik, outgoing President



Sri.SMH Mallikarjuna, secretary BH Chapter Receiving Best Chapter Award



Prof.S.K.Parihar receiving MEAI Active Chapter Award on behalf of Jodhpur Chapter



Sri.V.D.Rajagopal past president receiving MEAI Active chapter award on behalf of Hyderabad chapter.



Sri. O.P.Gupta receiving MEAI Active Chapter Award on behalf of Udaipur Chapter.



Sri. D.A. Hiremat and Sri. T. Hanumagonda past secretary of Belgaum chapter receiving MEAI Active Chapter Award



Sri.Ravichandran Raj Chairman Mumbai chapter receiving MEAI Active Chapter Award



Sri. Dhanajay Reddy, Chairman Bangalore chapter receiving MEAI Active Chapter Award



Prof. S.K.Parihar receiving Service Excellence Award



Sri. D.R.Vaze Council member receiving Service Excellence Award



Sri. Ravichandran Raj, Chairman Mumbai chapter receiving Service Excellence Award



Sri. Prabhakar Reddy, Chairman BH chapter receiving Service Excellence Award



Sri. Sanaj Kumar Pattanaik, past President congratulating the award winner



Sri. Sanaj Kumar Pattanaik, President delivering Presidential welcome address on 20-8-2021 in the 8th Council meeting held at Hospet.



Sri. K.A. Mahaveer, Dy. Director of Mines & Geology Hospet was being presented with a bouquet by Sri. Parabhakar Reddy, Chairman BH Chapter



Sri. K. Madhusudhana President MEAI with Sri. K.A. Mahaveer, Dy. Director Mines & Geology Hospet.



Sri. K.A. Mahaveer, Dy. Director of Mines & Geology Hospet being honored with shawl by Sri. SMH Mallikarjun.

8. Sessions



Sri. K. Madhusudhana, President MEAI delivering inaugural address on the National Seminar "The Mining Present and Future Prospects" held at Hospet on 21-8-2021.



Dr. P.T. Hanumagonda presenting Paper in the Seminar



Sri. Deepak Vidyarthi Presenting paper during Seminar



Dr.T.Venugopal addressing during the Seminar on 20-8-2021 at Hospet

9. Valedictory function



Sri. SMH Mallikarjuna, secretary, BH chapter addressing during valedictory function.



Sri.K.Madhusudhana, President MEAI address during the valedictory function

BELLARY-HOSPET CHAPTER

Report on National Seminar on “The Mining – Present & Future Prospects”

A National Seminar on “*The Mining – Present & Future Prospects*” was successfully organised & conducted by the Bellary-Hospet Chapter at Hotel Hampi International Pvt. Ltd, Station Road, Hosapete on 20-21 August, 2021. The mining companies of the region sponsored the event.

The 8th National Council meeting for the term 2019-2021 was conducted in the forenoon on 20.08.2021. The National Council meeting was conducted in Hybrid (Physical and Virtual) mode and the Bellary-Hospet Chapter was the first to conduct such a kind of meeting. Some of the Members, Council Members, and the Past Presidents of MEAI participated in the event online and deliberated on various points related to the development of the Association.

Mining Engineers’ Association of India National Awards for 2020 were presented to 37 members and the 14 Chapters of the Association in recognition of their achievements and performance.

The President Shri. Sanjay Kumar Pattnaik has installed the New National Council Members (Elected) for the Term 2021-2023 during the meeting.



Shri. K Madhusudhana, VP-I, Shri. Sanjay Kumar Pattnaik, President, Shri. M Narsaiah, General Secretary and Shri. O P Gupta, VP-II chairing the 8th National Council Meeting

The list of New Council Members (Elected) for the Term 2021-2023 is as follows:

1. Shri D B Sundara Ramam
2. Shri B.S.P. RAJU
3. Shri Anil Kumar Garg
4. Dr. T.N. Venugopal
5. Shri Deepak Vidyarthi
6. Shri D.A. Hiremath

7. Shri V. Jaya Prakash
8. Shri Sanjeev Sahi
9. Shri Sabyasachi Mohanty
10. Shri R.S. Raghuwanshi
11. Shri Prof. Dr. V.M.S.R. Murthy
12. Shri G. Shirish
13. Shri Pradip Kumar Sathpathy
14. Shri B. Surender Mohan
15. Shri Shameek chhatopadhyay
16. Shri Ravi Chandran Raj
17. Dr. Pradeep kumar Jain
18. Shri Prem Shankar Upadhyaya
19. Shri P.C. Bakliwal
20. Shri Anil Mathur
21. Shri Sunil Kumar Parihar
22. Shri S.S. Rathore
23. Shri S.K. Vashisth
24. Shri P.V. Krishnaiah Yadav
25. Shri Kandukuri Laxminarayana
26. Shri M. Palani Kumaresan
27. Shri G.R. Magesh
28. Shri Manish Kumar Yadav
29. Shri Pamidimukkala, Ramakrishna
30. Shri Bipin Kumar Giri



New Council Members (Elected) present at the Council Meeting on 20.08.2021

Later in the afternoon, the National Annual General Body Meeting of the Association was held where the President of MEAI Shri Sanjay Kumar Pattnaik presented the achievements of the Association during his tenure of two years.

Shri Sanjay Kumar Pattnaik announced that the Association is doing really well while climbing yet the new highs as the largest professional body of mineral industry in India. Senior Citizens' Fund for Mining Engineers' of the Association was introduced for extending monetary assistance for medical

treatment of senior citizens. He commended the recognition of the Association by CRISCO as the only Recognized Professional Organisation (RPO) in India to spearhead internationally recognized standards for reporting mineral resources and reserves as one of the key achievements of the Association in recent times.



Bellary-Hospet Chapter members receiving the Best Chapter Award of the Association

Shri Sanjay Kumar Pattnaik has handed over the presidency to his successor Shri K. Madhusudhana and acclaimed the role of Shri K. Madhusudhana in meeting the expectations of the Members and the mineral industry. Shri K. Madhusudhana, the incoming President of Mining Engineers' Association of India for the term 2021-2023 has presented his thoughts for implementation during his term.



Shri Sanjeev Kumar Pattnaik honoring the incoming President Shri K. Madhusudhana

The Inauguration of the Seminar "**The Mining – Present & Future Prospects**" was held on 20.08.2021 evening. The President Shri K Madhusudhana, Chief Guest Shri K.A. Mahaveer, Dy. Director DMG, Past President Shri Sanjay Kumar Pattnaik, Vice President-II Shri. O.P Guptha, Chairman BH Chapter Shri K. Prabhakara Reddy and Secretary BH Chapter Shri S.H.M. Mallikarjuna were on the dais during the inauguration of the Seminar. The inaugural ceremony was followed by dinner at the Hotel Hampi International.



Dignitaries on the dais in Inaugural Session of National Seminar on 20.08.2021

On 21.08.2021, the Seminar on “the Mining – Present & Future Prospects” was held in both the Physical and Live streaming online. During the Seminar, different mining topics were presented both physically and online by Shri K. Ramachandra, Shri Sandeep Sharma, Shri Deepak Vidyarthi, Shri Sabya Sachi Nayak, Prof. Sharath, Shri Balamahdeswar, Prof. Jayanthu, Shri M.M. Rakesh, Shri Raj Gopal, Shri Vijay Herle & Shri Vinay Kothari, Shri P Hanamgond, Shri Sanjay Sharma and Shri C.H Rao.

Over 160 delegates from the Mining industry covering Karnataka and Andhra Pradesh States participated in the Seminar. 48 delegates viewed the live streaming of the Seminar through YouTube & Zoom platforms.

The mining companies in the region that sponsored the National Seminar are: M/s NMDC Ltd, M/s MSPL Limited, Jindal Steel Works Ltd., Ramgad Minerals Mining Ltd., Sri Kumarswamy Mineral Exports Pvt. Ltd., Veerabhadrappa Sangappa & Co., Karnataka State Minerals Corporation Limited, P. Balasubba Setty & Son, Zeenath Transport Company, The SIMORE Limited, H.G. Rangan Goud, B.K.G. Group, R.B.S.S.N. Pvt. Ltd., The Hutti Gold Mines Ltd., and SUMS Techno Labs Pvt. Ltd.

Shri. K. Madhusudhana and Shri K. Prabhakara Reddy have expressed their gratitude to all mining companies for sponsoring the event and extending generous support in conducting the National Hybrid Seminar at Hosapete successfully.

In the evening, Mementoes and Encouragement Awards were presented to the Chapter in the Valedictory function. The function was concluded with the Vote of Thanks proposed by Shri S.H.M. Mallikarjuna, Secretary BH Chapter.

(Continued from Page 13)

and forecasted performance on curbing emissions, according to Bloomberg Intelligence’s carbon score ranking. The top five companies, based on their overall carbon score, are:

Company Name	Overall Score
Fortescue Metals Group Ltd.	9.84
Boliden AB	9.75
Kumba Iron Ore Ltd.	9.73
Newmont Corp.	9.53
BHP Group Ltd.	8.84

Source: Bloomberg

The BI ranking measures the companies on reduction trends, current and future carbon-dioxide intensity, planned cuts and positioning to the end of the decade compared to a temperature-aligned benchmark, using data through April 1. Of the companies analyzed, only Fortescue has set a carbon-neutral target for 2030. Fourteen companies aim to zero out emissions with the target date ranging from 2030 to 2050 as part of a long-term transition.

The mining industry faces increasing scrutiny from investors and regulators demanding greater emphasis on environmental, social and governance issues. Big miners have been working to improve sustainability reports, showing awareness of how hard their business can be hit if they ignore those calls, and a number of producers have set goals to reduce emissions or adopted more ambitious targets in the past couple years.

Aluminum producers face the highest risks due to carbon-intensive operations, according to the BI report. Those companies need to reduce emissions 49% by 2030, compared to the 20% cutback needed by other diversified and precious metals miners.

“Having carbon-reduction goals is important to aluminum companies because they’re more carbon-intensive than most other metals,” Shaheen Contractor, a Bloomberg Intelligence analyst, said. “That might be why for other miners like precious metal companies, few have set carbon emission goals as of April 1.”

European aluminum companies could see costs of as much as 1.5% of earnings before interest, taxes, depreciation and amortization to 2024, according to the report. A proposal to cut emissions in the European Union 55% by the end of the decade “may mean more headwinds”.

Bloomberg News | August 17, 2021



Mining Engineers' Association of India

NEW COUNCIL FOR THE TERM 2021-2023



K. Madhusudhana
President



S.N. Mathur
Vice President - I



O.P. Gupta
Vice President - II



D.B. Sundara Ramam
Vice President - III



M. Narsaiah
Secretary General



B. S. P. Raju
Jt. Sec. cum. Treasurer

ELECTED COUNCIL MEMBERS



Anil Kumar Garg
(Ahmedabad Chapter)



Dr. T.N. Venugopal
(Bangalore Chapter)



Deepak Vidyarthi
(Bangalore Chapter)



D.A. Hiremath
(Belgam Chapter)



V Jayaprakash
(Bellari-Hospet Chapter)



Sanjeev Sahi
(Bellari-Hosapet Chapter)



Sabyasachi Mohanty
(Bhubaneswar Chapter)



R S Raghuvanshi
(Bhubaneswar Chapter)



Prof. (Dr.) V.M.S.R. Murthy
(Dhanbad Chapter)



G. Shirish
(Goa Chapter)



Pradip Kumar Satpathy
(Hyderabad Chapter)



B. Surender Mohan
(Hyderabad Chapter)



Shameek Chattopadhyay
(Kolkata Chapter)



Ravi Chandran Raj
(Mumbai Chapter)



Dr. Pradeep Kumar Jain
(Nagpur Chapter)



Prem Shankar Upadhyaya
(Delhi Chapter)



P. C. Bakliwal
(Jaipur Chapter)



Anil Mathur
(Jaipur Chapter)



Sunil Kumar Parihar
(Jodhpur Chapter)



Prof. SS Rathore
(Udaipur Chapter)



Dr SK Vashisth
(Udaipur Chapter)



PV Krishnaiah Yadav
(Rayalaseema Chapter)



Kandukuri Laxminarayana
(Singareni Chapter)



M. Palani Kumaresan
(Tamilnadu Chapter)



G.R. Magesh
(Tamilnadu Chapter)



Manish Kumar Yadav
(Veraval-Porbandar Chapter)



Pamidimukkala Ramakrishna
(Vishakapattanam Chapter)



Bipin Kumar Giri
(Barajamda Chapter)

CONFERENCES, SEMINARS, WORKSHOPS ETC.

ABROAD

12th Sep 2021: International Conference on Geological and Environmental Sustainability (ICGES-21) in Kuching, Sarawak, Canada. Contact Info: Phone: +91 8870915303; Email: info@scienceleagues.com

13-15 Sep 2021: MINExpo International 2021. MINExpo INTERNATIONAL covers the entire industry - exploration, mine development, opencast, underground mining, processing, safety, environmental improvement, and more. Las Vegas Convention Center, 3150 Paradise Rd, Nevada, 89109, United States. For details contact +1 (202) 463-2639; MINExpo@nma.org

20-21 Sep 2021: ICGG 2021 - International Conference on Geochronology and Geography in Toronto, Canada. For more details, please visit: <https://waset.org/geochronology-and-geography-conference-in-september-2021-in-toronto>

21-22 Sep 2021: Africa Mining Summit. Phakalane Golf Estate Hotel & Convention Centre, Golf Drive Phakalane Phakalane, Gaborone, Botswana

28-29 Sep 2021: New Leaders Conference 2021. Online conference organized by AusIMM Brisbane, Australia

6-7 Oct 2021: ICEGGE 2021 - International Conference on Engineering Geology and Geomorphology Engineering in Beijing, China. For more details, please visit: <https://waset.org/engineering-geology-and-geomorphology-engineering-conference-in-october-2021-in-beijing>

13-16 Oct 2021: Bauma Conexpo Africa. Gallagher Convention Centre, 19 Richards Dr, Halfway House, Midrand, South Africa

18-19 Oct 2021: ICEG 2021 - International Conference on Earthquake Geology in Rome, Italy. For more details, please visit: <https://waset.org/earthquake-geology-conference-in-october-2021-in-rome>

18-22 Oct 2021: International Mineral Processing Congress. CTICC (Cape Town International Convention Centre), Convention Square, 1 Lower Long Street, Cape Town, South Africa.

21-22 Oct 2021: ICRSSGA 2021- International Conference on Remote Sensing Sensors for Geoscience Applications in Athens, Greece. For more details, please visit: <https://waset.org/remote-sensing-sensors-for-geoscience-applications-conference-in-october-2021-in-athens>

25-27 Oct 2021: International Mining and Resources Conference (IMARC) where Global mining leaders connect with technology, finance & the future. Melbourne showgrounds, Australia. For details contact connect@imarcglobal.com; Australia: +61 (0) 3 9008 5946

Oct 2021: Southern African Rare Earths International Conference. The Canvas Riversands Conferencing, 8 Incubation Drive Riverside View Ext 15, Fourways, Midrand, South Africa.

3-4 Nov 2021: International Conference on Mineral and Mining Engineering ICMME 2021. Cape Town, Cape Town, South Africa

8-10 Nov 2021: Iron Ore Conference 2021. Online conference organized by AusIMM Perth, Australia

8-9 Nov 2021: ICEGGP 2021 - International Conference on Environmental Geology and Geological Problems in Istanbul, Turkey. For more details, please visit: <https://waset.org/environmental-geology-and-geological-problems-conference-in-november-2021-in-istanbul>

17-18 Nov 2021: Cement Business & Industry Africa (CBI Africa). Leading cement conference & exhibition. Johannesburg, South Africa. Venue to be announced.

18-19 Nov 2021: International Conference on Mining Geology, Exploration and Mining ICMGEM in Singapore, Singapore. Website URL: <https://waset.org/mining-geology-exploration-and-mining-conference-in-november-2021-in-singapore>; Contact URL: <https://waset.org>

2-3 Dec 2021: ICRMGEA 2021 - International Conference on Rock Mechanics for Geotechnical Engineering Applications in Tokyo, Japan. For more details, please visit: <https://waset.org/rock-mechanics-for-geotechnical-engineering-applications-conference-in-december-2021-in-tokyo>

6-7 Dec 2021: ICCGM 2021 - International Conference on Computational Geosciences and Mathematical Modelling in Kuala Lumpur, Malaysia. For more details, please visit: <https://waset.org/computational-geosciences-and-mathematical-modelling-conference-in-december-2021-in-kuala-lumpur>

6-8 Dec 2021: International Future Mining Conference 2021. Online conference organized by AusIMM Perth, Australia

13-14 December 2021: ICRGGACS 2021 - International Conference on Regional Geology, Geologic Analysis and Computer Simulations in Cairo, Egypt. For more details, please visit: <https://waset.org/regional-geology-geologic-analysis-and-computer-simulations-conference-in-december-2021-in-cairo>

21-22 Jan 2022: International Conference on Economic Geology, Mineralogy and Mining ICEGMM in Amsterdam, Netherlands. Website URL: <https://waset.org/economic-geology-mineralogy-and-mining-conference-in-january-2022-in-amsterdam>; Contact URL: <https://waset.org>

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TATA STEEL

#WeAlsoMakeTomorrow



The Company targets to have

20%

Women Officers
in the workforce by 2025

BUILDING A MORE INCLUSIVE TOMORROW

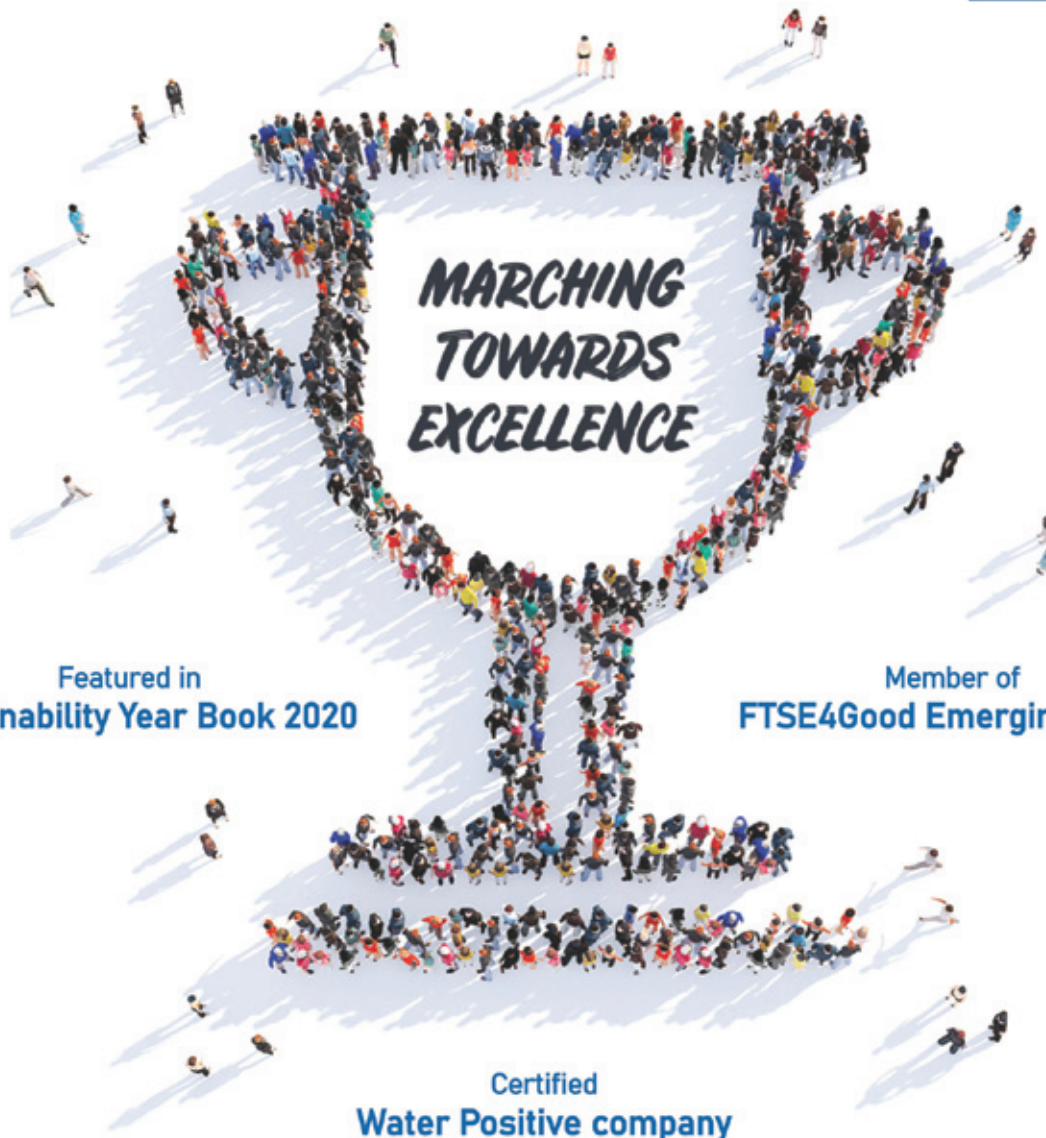
TATA STEEL IS THE FIRST IN THE COUNTRY
TO DEPLOY WOMEN IN ALL SHIFTS IN MINES



Tata Steel is the first company in India to deploy women in all shifts at Noamundi Iron Mine with effect from September 1, 2019. All norms stipulated by Directorate General of Mines Safety (DGMS) are being adhered to and prior consent from each woman employee is obtained. Adequate facilities and safeguards regarding occupational safety, security and health of the female employees working in the mines are of utmost importance to the company.



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Zinc & Silver of India



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