Confederation of Indian Industry
Eastern Region

CII MINING AND CONSTRUCTION EQUIPMENT DIVISION NEWSLETTER

February 2025

Published by Confederation of Indian Industry (CII), 6, Netaji Subhas Road, Kolkata-700001 | T: +91 33 2230 7727 | Web: www.cii.in

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Message from MCED Chairman

Mr Vivek Bhatia

Managing Director & CEO
TKIL Industries Pvt Ltd

The Mining and Construction equipment industry plays an indispensable role in shaping the nation's development. As India's mining sector grew by 7.5 percent in FY2024, the sector's positive performance was driven by robust demand in other important industries, highlighting strong economic activity. The mining and construction sector growth has significant implications for downstream industries such as power, steel, and aluminum, which are closely associated with the economy's manufacturing viz., auto, chemicals, steel, and cement and infrastructure viz., road, rail, and real estate sectors. As India grows and urbanizes, the demand for mining equipment and machinery becomes ever more significant.

The Indian mining industry is at an interesting pathway and recently saw various reforms to unlock the country's mineral potential. The government has taken several initiatives, such as granting exploration licenses (EL) through auction and omitting 6 minerals from the list of 12 atomic minerals in the MMDR Amendment Act 2023 to attract private players. In addition, there is a significant focus on policy reforms, incentivisation, the development of multidisciplinary exploration capacity and investment to fast-track exploration activities for deep-seated and critical minerals.

Our nation has vast mineral reserves, but much of its potential is yet to be fully explored. India produces as many as 95 minerals, which includes 4 fuel, 10 metallic, 23 non-metallic, 3 atomic and 55 minor minerals (including building and other materials). The mining industry is characterised by 1319 reporting mines of where Madhya Pradesh topped among the states while Odisha, Chhattisgarh and Jharkhand featured among the top 10 states. The contribution of mining to India's GDP has been estimated to vary between 2.1 percent and 2.5 percent over the last decade. The mining industry has the potential to help propel the country forward to a USD30 trillion economy by 2047. Advanced technologies, such as automation, digitalization, and electrification, could reduce operational costs by 20% to 30%.

According to the recent ICRA report, India's mining and construction equipment industry is likely to develop significantly, with localisation levels predicted to rise to 70 to 80 percent in the next 5 to 7 years. This shift could save USD 3 billion annually in foreign exchange and enhance export potential. The MCE market has grown at a compound annual growth rate (CAGR) of 12 percent over the previous ten years (FY2015-FY2024), driven by infrastructure-led expansion in India. According to ICRA, the market reached 1.36 lakh unit sales in FY2024.

The future of mining in India lies in tech innovations, propelling the nation towards self-reliance and sustainable growth. Automation and digitalization enhance mining efficiency, minimizing environmental impact. The collaboration among the mining industry, policymakers, and researchers is crucial in this tech shift. As team CII, we will continue to work as a facilitator and catalyst in the nation-building process. I hope you will find this issue of MCED newsletter interesting and useful.

About MCED

Mining & Construction Equipment Division (MCED) of the Confederation of Indian Industry (CII) has been serving the cause of mechanization and modernization and a vital value-adding link between manufacturers, suppliers and the government. As technology transforms the style and scale of the mining sector, CII MCED plays an important role in promoting an environment for stimulating growth of the sector through continuous engagement with Government & relevant stakeholders and Ease of Doing Business.

The major areas of interventions of the CII MCED are:

- Policy Advocacy for promoting an environment for stimulating growth of the sector through continuous engagement with Government
- Strategize and develop initiatives for improving the competitiveness of the industry by organizing capacity building initiatives, advocate adoption of global best practices
- Strategize and develop initiatives for promoting linkages with other countries to achieve the objective of promoting not only business development but also in the areas of research & development
- Harnessing opportunities to support Self Reliance “Atmanirbhar Bharat”
- Creating opportunities to engage more with the major PSUs and large-scale buyers
- To engage and encourage industry members to emphatically work on Environment, Social and Governance (ESG)

INDUSTRY ARTICLES

Mr Indranil Roy

Director Mining, Materials Handling & Processing
TKIL Industries Pvt Ltd

Electrification of the mining operations with augmentation of renewable power for sustainable mining

The global mining industry is undergoing a significant transformation, driven by the need for more sustainable and environmentally friendly practices. As one of the world's largest producers of minerals and metals, India is increasingly focusing on sustainable mining to meet its environmental commitments and achieve economic growth. One of the most promising avenues for achieving this goal is the electrification of mining operations, which can significantly reduce greenhouse gas emissions, improve energy efficiency, and enhance the overall sustainability of the sector.

India is rich in mineral resources, which are crucial for the country's industrial growth and energy production. However, mining activities have traditionally been associated with high energy consumption, significant greenhouse gas emissions, and adverse environmental impacts. Diesel-powered machinery, which is commonly used in traditional mining operations, contributes to pollution, both locally and globally, through the release of carbon dioxide and particulate matter.

The contribution of mining to India's GDP has been estimated to vary between 2.1% and 2.5% over the last decade. The mining industry has the potential to propel the country forward to become a $30 tn economy by 2047. Also, the mining industry can potentially create an additional 25 mn jobs (direct and induced) over the business-as-usual scenario by 2047.

The mining sector itself will face pressure from governments, investors, and society to reduce emissions. Mining is currently responsible for 4 - 7 % of greenhouse-gas (GHG) emissions globally. India ranks 3rd in global emissions from coal mining. Emissions only from coal mining was ~22 MtCO2e in 2020 and expected to reach 45 MtCO2e in 2050.

Indian mines need to adopt mechanization to the maximum extent using continuous or semi-continuous mining technologies. The aim should be to use conveyor systems preferably long-distance belt conveyors both trough and pipe conveyors which can transport materials over undulating terrain with horizontal and vertical curves thereby increasing the efficiency of material transportation. For mining operations, modern technologies like fully/semi-mobile crushing plants or bucketwheel excavators & associated systems like belt wagons with shiftable conveyors can significantly improving efficiency & productivity while minimize the carbon emission from the operations. NLC India mining operations with fully continuous lignite mining is one of such examples of mechanized mining with electricity-driven systems.

An interesting case study, let us consider a long-distance pipe conveyor, 7.5 kilometres in length, is designed to handle a load of 3000 tons per hour (TPH). This conveyor typically consumes around 4 MWe/hr. Over a 15-hour

operational day, it would use 60 MWh of power, resulting in a monthly consumption of 1,800 MWh (assuming 30 days of operation).

With the Coal-fired plant emits 0.986 tonnes of CO2 equivalent per megawatt-hour (MWh), the conveyor's monthly power consumption leads to over 1775 tonnes of CO2 emissions. By transitioning to 100% renewable energy, an organisation could reduce its carbon emissions by 450 metric tonnes every month. Solar power offers a practical solution for this. By installing solar panels along the conveyor's structure, energy can be generated sustainably.

Before installation, however, it's essential to assess the local sunlight availability. A grid-connected solar panel system can supply power to the grid and, when needed, provide energy to the conveyor.

For a 7.5-kilometer conveyor, solar panels can be mounted on both sides of the structure. With each panel measuring 1.2 meters in width, a total of 12,500 panels can be installed. Each panel generates 520 watts, the total renewable energy output would be 6,500 kW, which is sufficient to power the conveyor (4000 kW) and make it self-sustaining.

With technological advancements & large capacity long term mining are adopted in India, electric mining machinery can be more efficient, hence the industry needs to accelerate transition towards electrification. Collaboration between the government, private sector, and technology providers will be crucial in overcoming the existing barriers and making electrification a viable and attractive option for all mining companies.

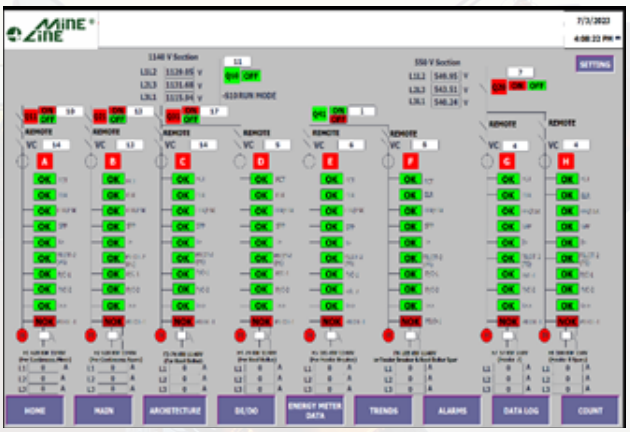
To make mining operations more sustainable with aiming at net zero by 2070 as per India's commitment, renewable energy sources like solar, wind & others can play major role by providing electricity for the operations of these technologies.

Ms Nandini Chakravarty

Managing Director
Mine Line Pvt Ltd

Future ready for productive & safer mines loadcenters with automation

Underground coal mines are one of the most dangerous workplaces. Presence of coal dust, water, and methane makes it vulnerable.The toughest challenge is to provide safe & user-friendly electrical equipment to ensure safety of the miners. Mine Line load centers have been developed to fill that gap. Over 11 such loadcenters are working in Indian mines.



Use of automation in these load centres for control and monitoring of the mining operations at longwall or continuous miner face, enables higher productivity, lesser downtime through instant fault analysis and optimised safety.

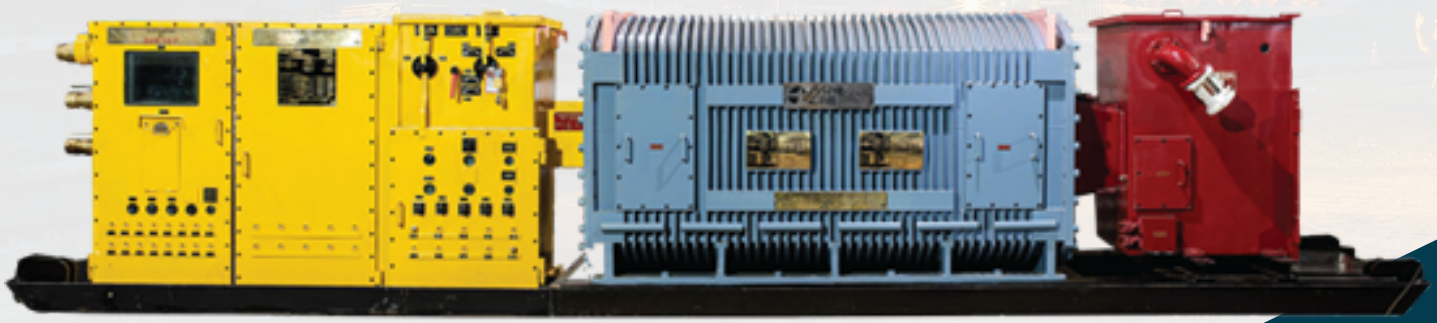
The LED Screen with Smart System (IPC) offers self-diagnostic feature through Pop up messages. This software developed by us, gives instant indication of any fault on any feeder. The Control & reset is possible through an intrinsically safe trackball which is password protected. There is a full colour monitor screen mounted on the front cover.

Periodic reports are generated from System for Machine availability, power consumption, and stoppage data with reasons for stoppage on any drive. Fault analysis voltage fluctuation and safety parameters like Earth Fault.

Factory pre-set values of Overload, monitoring cable conditions, single phasing of the individual feeders, cable insulation, overvoltage/under voltage are also monitored & generated through the system.

It is possible to change the tripping parameters without opening the front cover, through a password-protected external keyboard

Data transmission to the pit top is possible. This can be viewed and operated on surface PCs through appropriate cables.



MAJOR ACTIVITIES OF MCED

CII MCED Business Delegation to Katowice, Poland

CII Mining and Construction Equipment Division led by Mr Vivek Bhatia, Chairman, CII MCED and Managing Director, TKIL Industries Ltd organised a business delegation to Katowice, Poland, from 4 to 7 September 2024. Katowice is best known for its coal mines, which were developed in the first half of the 19th century. The objective of the delegation was to understand the business and investment opportunities available in Poland, identify prospects for collaboration and expand market access for products from India.

The delegates attended the Katowice Mining Expo, participated in Business-to-Business (B2B) meetings with local chambers and industries, and engaged in interactive sessions with key government officials from both India and Poland. These interactions facilitated discussions on potential partnerships and collaboration opportunities.

The delegation also visited the Pniówek underground coal mine in Poland, one of the largest in Europe. This mine visit offered a firsthand experience of the mining equipment in operation and valuable insights into the latest mining technologies.

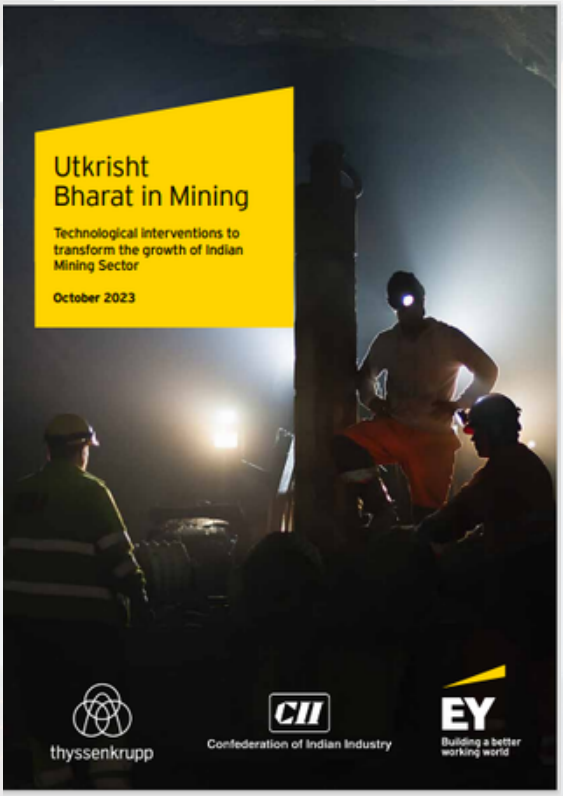
During the visit, the senior industry delegation strengthened ties between the business communities of India and Poland in the mining sector. The delegation's visit enhanced business relationships, networking opportunities, and positioned Indian businesses for growth in the European market. The delegation helped Indian mining equipment companies to expand their market reach, evaluate the market potential and identify prospective buyers for their equipment.

Exploring the Roadmap of Growth for the Mining Sector

CII organized the maiden edition of the Mining & Construction Equipment Summit on 19 October 2023 in Bhubaneswar, under the aegis of the CII National Committee on Mining and Construction Equipment Division (MCED). The summit highlighted the critical role of the mining sector in Odisha's socio-economic development. The event showcased the collaborative efforts of stakeholders and the sector's global significance in driving India's economic vision. Officials from the Government of India and the Government of Odisha, along with Industry members in mining, construction equipment and infrastructure sectors participated in the summit.

Shri Anurag Jain, Secretary (RT&H), Ministry of Road Transport and Highways (MoRTH), Government of India said that the ministry has created a 'Vision 2047', with the allocation for this Ministry increasing by five times since 2014 from Rs 50,000 crore to Rs 2,70,000 crore. Logistics costs in India are very high and to bring down these costs, the Ministry of Road Transport & Highways has made continued efforts in developing the infrastructure. Shri Pradeep Kumar Jena, Chief Secretary, Government of Odisha underscored the pivotal role of the mining sector in driving the state's socio-economic development. There is a need to continue the positive trajectory of the mining Industry, as it plays a crucial part in the State's growth and prosperity, he said Shri D K Singh, Additional Chief Secretary, Department of Steel & Mines, Government of Odisha stressed upon the importance of sustainability and intergenerational equity. He urged the mining stakeholders to adopt efficient infrastructure that promotes eco-friendly mining practices.

Shri Hemant Sharma, Principal Secretary, Department of Industries, Government of Odisha noted that Odisha secured second position in the country for attracting investments totalling Rs 20.1 lakh crore in FY2023 and the third position for attracting bank-assisted investment proposals during the same period. A report titled 'Utkrisht Bharat in Mining' was also released during the summit. Mr Shiv Siddhant Narayan Kaul, Past Chairman of CII Eastern Region and Managing Director, Nicco Engineering Services Ltd and Mr Vivek Bhatia, Chairman, CII MCED and MD & CEO, TKIL were among the other key speakers at the summit.



A report on "Utkrisht Bharat in Mining" released during the MCED Summit

Confederation of Indian Industry

The Confederation of Indian Industry (CII) works to create and sustain an environment conducive to the development of India, partnering Industry, Government and civil society, through advisory and consultative processes.

CII is a non-government, not-for-profit, industry-led and industry-managed organization, with around 9,000 members from the private as well as public sectors, including SMEs and MNCs, and an indirect membership of over 365,000 enterprises from 294 national and regional sectoral industry bodies.

For more than 125 years, CII has been engaged in shaping India's development journey and works proactively on transforming Indian Industry's engagement in national development. CII charts change by working closely with Government on policy issues, interfacing with thought leaders, and enhancing efficiency, competitiveness, and business opportunities for industry through a range of specialized services and strategic global linkages. It also provides a platform for consensus-building and networking on key issues.

Through its dedicated Centres of Excellence and Industry competitiveness initiatives, promotion of innovation and technology adoption, and partnerships for sustainability, CII plays a transformative part in shaping the future of the nation. Extending its agenda beyond business, CII assists industry to identify and execute corporate citizenship programmes across diverse domains including affirmative action, livelihoods, diversity management, skill development, empowerment of women, and sustainable development, to name a few.

For 2024-25, CII has identified "Globally Competitive India: Partnerships for Sustainable and Inclusive Growth" as its Theme, prioritizing 5 key pillars. During the year, it would align its initiatives and activities to facilitate strategic actions for driving India's global competitiveness and growth through a robust and resilient Indian industry.

With 70 offices, including 12 Centres of Excellence, in India, and 8 overseas offices in Australia, Egypt, Germany, Indonesia, Singapore, UAE, UK, and USA, as well as institutional partnerships with about 300 counterpart organizations in almost 100 countries, CII serves as a reference point for Indian industry and the international business community.

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