

Souvenir

# Coal Log India 2022

Coal Logistics & Supply Chain

2<sup>nd</sup> International Conference & Expo

2 Sep. 2022, Biswa Bangla Convention Centre, Kolkata

Theme : "Coal Logistics Optimization - Challenges and Solutions"



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# INDIAN COAL FORUM

Presents

## Coal Log India 2022

Coal Logistics & Supply Chain  
2<sup>nd</sup> International Conference & Expo

2 Sep 2022, Biswa Bangla Convention Centre, Kolkata

Theme : Coal Logistics Optimization - Challenges and Solutions

### ORGANISERS



ARE THANKFUL TO ALL PARTICIPANTS  
FOR THEIR OVERWHELMING SUPPORT

AND ARE GRATEFUL TO

### SUPPORTERS



सत्यमेव जयते

- Ministry of Coal
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# पर्यावरण की सुरक्षा का संकल्प



इस संकल्प ने हमारे मन-मानस  
में गहरी जड़ पकड़ ली है।



**कोल इण्डिया लिमिटेड**

विश्व की बृहत्तम कोयला उत्पादक संस्था  
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प्रकृति के अस्तित्व में ही हमारा अस्तित्व है

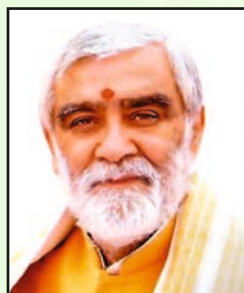




अश्विनी कुमार चौबे  
Ashwini Kumar Choubey



राज्य मंत्री  
पर्यावरण, वन एवं जलवायु परिवर्तन  
उपभोक्ता मामले, खाद्य और सार्वजनिक वितरण  
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**Link**

इस ब्रह्मांड में हमारे शरीर की कोशिका से लेकर कॉस्मिक जगत की वस्तुओं का संचरण उर्जा से ही होता है। देश में 50% से अधिक विद्युत उर्जा का उत्पादन कोयला आधारित इकाइयों से होता है। भारत के भू-गर्भ में अनुमानित 35.2 अरब टन कोयला भंडार है।

इन्हीं तथ्यों को ध्यान में रखते हुए कोल इंडिया लिमिटेड को वर्ष 2006-07 में 'मिनीरत्न' (Mini Ratna), वर्ष 2008-09 में 'नवरत्न' (Navratna) और अप्रैल 2011 में इसे 'महारत्न' (Maharatna) का स्थान दिया गया।

आत्मनिर्भर भारत बनाने, भारत को विकसित देश बनाने एवं देश की 5 ट्रिलियन डॉलर की अर्थव्यवस्था के लक्ष्य को पाने में कोयले की भूमिका महत्वपूर्ण है। इस लक्ष्य को पाने के लिए हमें प्रधानमंत्री श्री नरेंद्र मोदी जी के मूलमंत्र "सबका साथ, सबका प्रयास" को अपनाना होगा।

मुझे यह जानकर हर्ष है कि "कोल इंडिया फोरम" द्वारा "कोल लॉग इंडिया 2022" का आयोजन कोलकाता में किया जा रहा है। जिसमें कोयला से जुड़े सभी क्षेत्रों के सभी प्रमुख हित धारकों- एकेडमिशिया से लेकर उद्योगपति तक, निर्णायक से लेकर प्रशासक तक, इंजीनियर से लेकर लॉजिस्टिक सुविधा उपलब्ध कराने वाली संस्थाएं भाग ले रही हैं। वे इस बात पर मंथन करेंगी, कि सतत विकास के लक्ष्य को पूरा करते हुए, ताप ऊर्जा के इस अकूत भंडार का उपयोग देश के विकास में कैसे किया जाए।

(अश्विनी कुमार चौबे)

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डॉ. अनिल कुमार जैन, भा.प्र.से.  
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**SECRETARY**

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GOVERNMENT OF INDIA  
कोयला मंत्रालय  
MINISTRY OF COAL  
शास्त्री भवन, नई दिल्ली-110 001  
SHASTRI BHAWAN, NEW DELHI-110 001  
www.coal.gov.in

## Message

I compliment Indian Coal Forum on its decision to organize a One Day International Seminar and Expo - "Coal Log India-22" on the theme **"Coal Logistics Optimization - Challenges and Solutions"** at Kolkata on **2nd September 2022**.

The theme is very relevant in consideration of the fact that Coal is and will continue to remain the Prime Energy Source and fuel for Power Generation for at least two more decades and the country will have to produce close to 2 Billion Tons by 2040.

While achieving this production level is a major challenge, a bigger challenge will have to be faced in reaching this Coal to the End-Use plants, economically and in an environment friendly manner.

Coal being a bulk commodity, Rail is the most logical transport system for it but in our country lot of Coal is being moved by road. Unfortunately, this is neither scientific nor economical as much as this system of transport involves burning of high quality fuel-Diesel for transporting low quality fuel like Coal.

The challenge before the country is to expand the Rail Connectivity in active Coalfields and to lay new Rail lines in the Developing and to-be-Developed Coalfields. This is important since bulk of the additional Coal production will have to be obtained from these Coalfields.

Simultaneously, the country also has to look at alternatives to Railways like the River system and the Sea route. While lot of Coal is being moved by sea route to Southern States, Riverine Transport potential has also to be harnessed. Areas like First-Mile -Connectivity from Pit-Heads to Rail-head and again the last-mile-connectivity from the Rail head to the End-Use plants are low hanging fruits which require immediate attention.

To this end, Government of India as well as Coal India Ltd. have taken a path-breaking decision for investing as much as Rs. 33 Thousand Crores on improvement of Coal Evacuation Infrastructure. Coal India has also formed Joint Venture Companies with IRCON and State Governments of Chhattisgarh and Odisha for construction of new Rail lines to serve the developing Coalfields like Mand-Raigarh and IB Valley.

I am sure the participants in the Seminar who will be drawn from among Coal and Transport Professionals will identify areas for improvement in transport infrastructure so that a Billion Tons of Coal to be produced within next 2 to 3 years can be reached economically and efficiently to End-Use plants.

I wish the Seminar and Expo a great success.

  
(Dr. Anil Kumar Jain)

Date: 27.07.2022

**प्रमोद अग्रवाल**  
**अध्यक्ष-सह-प्रबंध निदेशक**  
**Pramod Agrawal**  
 Chairman-Cum-Managing Director



**कोल इण्डिया लिमिटेड**  
**COAL INDIA LIMITED**  
 (A MAHARATNA COMPANY)  
 A Govt. of India Enterprise  
 "COAL BHAWAN"  
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 Kolkata-700 156



## Message

The country's coal production is in upward swing with Coal India spearheading the growth. Output from other producers is also on the up. Aligning and strengthening robust evacuation logistics in sync with the production expansion then becomes crucial to ensure seamless supply of coal.

To transport increased volume of coal, rail is the preferred option which is environmentally beneficial over road movement. Rail mode of evacuation accounts for 73% including MGR, if loading from goods sheds and washeries is also factored in, then its share jumps even higher to around 79%.


While these efforts increase the evacuation capacity, alternative evacuation modes also needs to be explored especially waterways where there is potential.

Coal India is cognizant of the importance of coal transport logistics. For quicker and quality loading the company has identified a total of 44 'First Mile Connectivity Projects' in a two-phase implementation. 35 FMC Projects of 415 MTPA capacity are covered under first phase while the second phase includes 9 projects of 57 MTPA capacity.

I appreciate the efforts of Indian Coal Forum for their initiative in organizing its 2<sup>nd</sup> International Conference & Expo at Kolkata on 2<sup>nd</sup> September 2022 on the theme "Coal Logistics Optimization – Challenges and Solutions".

With diversified stakeholders like mining companies, captive and commercial coal block operators, coal transporters, State Gencos and Discoms, the Conference is bound to be enlivening and invigorating. Identifying workable solutions in coal evacuation infrastructure for practical implementation should be the aim.

My Best Wishes for the success of the Conference.

  
**Pramod Agrawal**





अरुन अरोरा  
महाप्रबंधक  
**Arun Arora**  
GENERAL MANAGER



पूर्व रेलवे  
महाप्रबंधक कार्यालय  
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कोलकाता-700 001  
**EASTERN RAILWAY**  
Office of General Manager  
17, Netaji Subhas Road  
Kolkata-700 001  
28<sup>th</sup> July, 2022

## Message

I compliment Indian Coal Forum on its decision of organizing a One-Day International Seminar and Expo on Coal Logistics “Coal Log India – 22” on the theme “Coal Logistics Optimization – Challenges and Solutions” at Kolkata on 2<sup>nd</sup> September 2022.

Railways are the principal transporter of Coal in the country and this adds to the relevance of this Seminar for the Indian Railways.

India is very fortunate in having huge Coal resources – of the order of more than 320 Billion Tons. Despite this, it has to import close to 250 Million Tons of Coal, about 50 Million Tons of Metallurgical and close to 200 Million Tons of Power Grade. Import of Metallurgical Coal cannot be wished away since we don't have adequate reserves of proper quality of this type of Coal but import of Power Grade Coal has to be stopped forthwith.

For achieving this objective and also for meeting the additional requirement which is coming up by the day, Coal India has to produce 1 Billion Tons by 2025. This will amount to an increase of close to 300 Million Tons over the existing production level.

While achieving this additional production is a major challenge, an equally big challenge will be to move this Coal from the pit-heads to the consumption centers. Obviously, Railways will have to play a major role in achieving this task but simultaneously, other modes of transport should also be examined for their possible utilization for Coal transport, primarily for reducing the burden on the Railways and also to bring down the cost of Coal transportation. Transportation through Waterways of which the Country has a vast network should also receive priority attention in this regard.

I would be looking forward to the recommendations of this Seminar which will be attended by Top Coal and Transport Professionals of the Country, for improving Coal transport facilities and Infrastructure in the Country. I would also like to assure that Railways will leave no stone unturned to accomplish the task of moving all Coal that is produced to the Coal Consumption Centers efficiently, economically and in environment-friendly manner.

I convey my best wishes to the Indian Coal Forum for a successful Seminar & Expo.

  
( Arun Arora )  
General Manager

ओम प्रकाश सिंह  
अध्यक्ष-सह-प्रबंध निदेशक (कार्यकारी)

*Om Prakash Singh*  
Chairman-cum-Managing Director (Acting)



A Miniratna Company

ମହାନଦୀ କୋଲଫିଲ୍ଡ୍‌ସ୍ ଲିମିଟେଡ୍

महानदी कोलफील्ड्स लिमिटेड

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## Message

It gives me immense pleasure to learn that Indian Coal Forum will be organizing its 2<sup>nd</sup> Coal Log India's International Seminar on **"Coal Logistics Optimization - Challenges and Solutions"** and I congratulate the entire team for their contribution and exemplary dedication for achieving new heights in knowledge dissemination and their keen interest in finding appropriate solutions for the betterment of the entire Indian Mining Industry and the nation as a whole.

The Indian Coal Forum has always strived hard to bring the coal mining dignitaries, stakeholders, consumers, distribution companies as well as regulators under the same aegis to adopt innovative & sustainable practices and recognizing breakthrough technologies which will resolve burning issues in coal mining and its allied industries.

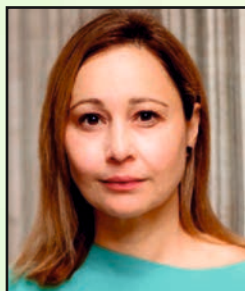
With this year theme focusing on Coal logistics optimization, I am quite positive that this event will serve as an knowledge portal for all dignitaries and participants on the issues of coal production longevity, future energy scenario of the nation, improving logistics & addressing supply chain issues, environmental friendly transportation, alternate uses of coal, long term infrastructure planning, reforming government policies , IT enabled solutions in coal industries and welcoming modern technology to improve safety. I am sure that all the notable speakers and presenters in the technical sessions will come up with industry based solutions and suggest necessary reforms in policies which will benefit the coal mining fraternity in the long run.

I am also hopeful that the bond shared between Mining Industries, Regulators, stakeholders and consumers will flourish further in the coming years and I convey my good wishes for success of this event.

( Om Prakash Singh ) 25/9/22  
Chairman-cum-Managing Director



**Michelle Manook**  
CEO  
World Coal Association



### **Message**

The World Coal Association (WCA) is delighted to again to be partnering and participating in the Coal Log India 2022 Conference.

Given current global energy challenges, including fuel supply shortages, transportation blockages, price spikes, and geopolitical issues, the timing of this Conference and the discussions it will generate are vitally important.

India remains at the forefront of the global coal industry, and this is acknowledged through the enormous time the WCA is spending on the ground here as coal's role in energy security, economic development and abatement becomes better understood and more widely recognised.

Over the past few months, we have expanded our membership base amongst a new vanguard of responsible coal participants, and we will be returning to India again in November to strengthen our constituency even further through engagement with Government, industry, investors and the media.

We believe this is an exciting time for coal as it transitions through clean technology and abatement innovation.

The work which the Indian Coal Forum is doing in hosting the Coal Log India 2022 is to be applauded and we wish all participants and attendees a truly transformative event.

**— Michelle Manook**





# INDIAN COAL FORUM

(Registered under Societies Registration Act 1860 - Regd No. S/30956 of 1997)

**Alok Perti, IAS (Retd)**

**Chairman**

Former Secretary, Ministry of Coal



## Message

The Indian Coal Forum, a non-profit organization established in 1997 by a group of professional who had wide experience in the Coal Sector. The primary objective of the organization was to highlight the increasing role of Coal in the growth of the national economy as the prime source of commercial energy in the country and working towards achievement of long range national objectives in all aspects of planning, development, efficient production and utilization of coal including promotion of environment-friendly clean coal technologies and mine safety. Over the years the Indian Coal Forum has had the opportunity to organize several events both at the national and international level. Unfortunately during the COVID pandemic physical meetings completed stopped and the forum could organize only a few Webinars. Ever since the situation has improved the focus is again shifting to having physical meetings. In 2021 ICF organized the first major conference on Coal Logistics at Kolkata. It was a very successful event in which more than 150 professionals participated. Coal Log 2022 is second in the series and we look forward to having greater involvement of all professional connected with the coal sector in this forthcoming conference.

Over the last two years the world has witnessed large scale turbulence in trade and commerce and the coal sector has been hugely impacted. At first the COVID pandemic seriously affected movement of all goods and commodities creating unforeseen shortage of coal for power generation. The second shock came with the Ukraine war. Here we witnessed steep sharp in coal demand throughout the world coupled with skyrocketing prices. These events had very large adverse impacts on coal availability in the country primarily for power generation. Such events do expose the deficiencies in the production and distribution system but also lend themselves to reformative or corrective action. The government has been intensely engaged in trying to tackle this extremely difficult situation. In ensuring availability of coal government have even mandated compulsory usage of imported coal to the extent of 10% by power plants. It is quite apparent that increase in production of coal is perhaps the most important issue to be handled today. With increased production the need to enhance transportation is imperative. Linked with the issue of transportation is the facilities connected with all modes of transportation: rail, road, conveyor, inland water or sea route, first mile connectivity and even coal handling plants. This conference aims to bring together all stakeholders on a single platform where an effective exchange of views and ideas on the subject can take place.

One is looking forward to a very interesting and useful interaction amongst experts and those who are intensely involved in implementing some of the measures required for improving and enhancing transportation arrangements.

I wish the conference all success

**Alok Perti**



# INDIAN COAL FORUM

(Registered under Societies Registration Act 1860 - Regd No. S/30956 of 1997)

**Dr. M P Narayanan**

**Co-Chairman**

Former Chairman, Coal India Ltd.



## Message

I heartily congratulate my young and dedicated colleagues in Indian Coal Forum for having selected the theme “Coal Logistics Optimization – Challenges and Solutions” for the International Seminar “Coal Log India-22” and which we are organizing at Kolkata on 2nd September 2022 .

First thing, the selection of the theme is remarkably topical since Coal Logistics which are as important as production have not received adequate attention till a few years back. But now the matter has engaged serious attention of Railways, Ministry of Coal as well as Coal India Ltd. which have jointly as well as separately drawn a very ambitious and well-designed programme for improving the Rail Connectivity in the actively mined Coalfields and constructing new facilities in developing Coalfields.

Equally praiseworthy has been the selection of the venue of the Seminar. It is Kolkata which is the hub of the activities in matters of Coal Logistics and this will give an opportunity to the Coal Handling /Coal Transport Companies to attend the Seminar and share their views on different aspects thereof.

I wish the Seminar and also accompanying the Expo great success and wish my young colleagues in the Indian Coal Forum all the best.

Thanking you,

– Dr. M P Narayanan



# INDIAN COAL FORUM

(Registered under Societies Registration Act 1860 - Regd No. S/30956 of 1997)

**S K Chowdhary**

**President**

Former Chairman, Coal India Ltd.



## Message

For the Coal Industry globally, Coal Logistics occupy a very central position in the entire supply chain of Coal. It is particularly so in India since Coal is produced primarily only in a few states like West Bengal, Jharkhand, Odisha, Chhattisgarh, Madhya Pradesh, Maharashtra and Telangana with valuable contribution from Nagaland, Meghalaya and Arunachal Pradesh but being the primary source of energy for the country and it is used in all states.

Position of Coal in the national economy can be gauged from the fact that it accounts for little more than 55% of the energy basket and more than 75 % of Power Generation depends on Coal as the primary fuel. It is therefore very important that Coal is moved from the Mines economically, efficiently and in an environment-friendly manner so that the growth of the national economy can be achieved as per plans.

I am very happy that the Indian Coal Forum has selected Coal Logistics as the theme for the International Seminar that we are organizing at Kolkata on 2nd September 2022.

The selection of the venue is equally praiseworthy since Kolkata occupies a very important position in the Coal supply chain and this Seminar will give an opportunity to the leaders in Coal Logistics to exchange their views with the Experts from the Government as well as Private Sector who will be speaking at the Seminar.

I wish the Seminar all success with the hope and confidence that this effort will lay the foundation for growth of Indian Coal Forum so that it can serve the Indian Coal Industry as per its declared objectives.

Thanking you

**S K Chowdhary**





# INDIAN COAL FORUM

(Registered under Societies Registration Act 1860 - Regd No. S/30956 of 1997)

## U Kumar

**Executive President**

Former CMD, South Eastern Coalfields - Bilaspur (Chattisgarh)

Northern Coalfields Ltd. – Singrauli (M.P.)



## Message

We, in Indian Coal forum have been striving to achieve the objectives which the Forum set before itself when it was launched in 1997. At every cross-road which the Indian Coal Industry has encountered in its journey, after its nationalization in 1971-73 and formation of Coal India Ltd in 1975 it has given its views, discussed these with appropriate Authorities and also highlighted them through Seminars/Workshops.

This Seminar on Coal Logistics with the theme “One Billion Tons- Logistical Challenges” is one such attempt to address a major challenge which Coal India in India will face in near future. Despite, huge Coal Resources, the Country remains import-dependent for almost 25% of its Coal requirement but thanks to a series of radical steps culminating in opening of the coal sector to commercial mining, it can be reasonably hoped that production issues will be resolved and the industry would achieve a production level of One Billion Tons within 2-3 years.

A related challenge however, has not received adequate attention and that is Coal Logistics. The existing transport infrastructure for coal including Railways is finding it difficult to transport even the existing production level of about 600 million tons from Coal India and about 100 million tons from other Producers. Effective steps have therefore to be planned and taken in time for the production level of One Billion Tons by Coal India alone in next 2-3 years.

This Seminar has been planned to focus attention on this subject. It has been designed to attract best Thinkers, Planners, System Designers, Coal Producers, Coal Consumers and Coal Transporters. The views expressed by the Specialists in different sectors are proposed to be synthesized into Implementable Recommendations which will be submitted to the Policy Makers and Planners with the hope that these receive due attention and these are implemented to ensure that the increased production reaches the consumers' door-steps on time and economically and in Eco-Friendly Manner.

I wish all success to this Event.

**U. Kumar**



# INDIAN COAL FORUM

(Registered under Societies Registration Act 1860 - Regd No. S/30956 of 1997)

## N N Gautam

Secretary General

Former Advisor (Projects),  
Ministry of Coal



## Message

Indian Coal Forum (ICF), consists of a band of very distinguished, dedicated and successful Senior Coal Professionals and Civil Servants who had made very effective contribution to the growth and well being of Indian Coal Industry in the past. ICF keeps on identifying the problem areas which stand in the way of growth and well being of Indian Coal Industry

The selection of theme “Coal Logistics Optimization – Challenges and Solutions” of this conference clearly establishes that ICF is well aware and remains in deep touch with the current and the future problems of the Indian Coal Industry and is making all efforts to look for solutions and way forward by brining policy makers, industry captains and other important stake holders on a common platform.

ICF is aware and is greatly concerned about the endemic shortage of Coal and country's dependence on import of coal. Very serious efforts are being made to increase Coal production and the production has started picking up. if logistical infrastructure is not suitably augmented then this will become a big hindrance in the needed growth of coal sector.

The distinguished Speakers and very learned participants of the Seminar belong to all important sectors like policy makers, Coal Producers, Coal Transporters, Coal Consumers, Technology & Service Providers, Academia, Scientific Institutions, and Planners. I am sure, based on the deliberations at the Seminar an implementable Road map will emerge which will become a guide for all stake holders to take appropriate action.

An Expo is also being organised along with conferences where various stake holders will be showcasing their achievements and future plans.

I wish the event “COAL LOG INDIA-2022” to generate fruitful deliberations and grand success

**N N Gautam**



## Coal Log India 2022

*Theme : "Coal Logistics Optimization - Challenges and Solutions"*

2nd September, 2022 • Kolkata

### Coal in India

Indian Coal is confronted with multi-dimensional challenges-meeting the country's ever increasing demand for Coal, Environmental problems associated with Coal-based power generation, Constraints in increasing production arising out of difficulties in getting Approvals and Clearances, Difficulties in Land Acquisition and R&R and Uncertainties caused by the disruptive changes which are bound to come sooner or later with commercialization of technological solutions for affordable storage of electrical power. It is also accepted that the Country's economy cannot reach the desired pace of growth unless domestic Coal production increases to bridge the gap between the demand and supply.

The Government of India has taken several path-breaking steps for removing the constraints in the way of augmentation of Coal Production and one of the major ones is the opening of the Coal sector for commercial mining. It is hoped that this will give a real push to domestic Coal production and the Indian Coal Industry will be able to eliminate the country's dependence on import of, at least Power Grade Coal.

### Coal Logistics

Even at present, there are enormous challenges in moving the Coal from the Pit-head to the consumption points because of inadequacy of First -mile connectivity between the Mines and the Railway Sidings and overall inadequacy in Rail movement capacity. Here also, Coal India Ltd., Railways and some of the Coal producing States like Jharkhand, Chhattisgarh and Odisha have taken very effective steps for bringing Rail connectivity to developing Coalfields by undertaking construction of new Railway Lines through Joint Venture route.

Advent of commercial mining is bound to lead to opening of a large number of new mines which will no doubt put greater pressure on the existing Coal transport system but simultaneously it will also open possibilities for designing and construction of alternatives involving Environment-friendly economic modes of Coal transport like Long Distance Belt Conveyor System and Riverine and Maritime transport of Coal.

### About Event – Coal Log India

Indian Coal Forum started the "India Coal Log" series of Conferences by organizing a major Conference titled "Coal Log India - 21" which was a tremendous success with participation of close to 160 Top Coal Professionals and Representatives from Mining fraternity, Coal Users, Coal Traders, Transport Agencies, Coal Testing Agencies etc. Together with this Event an Exhibition was also organized on the same premises.

The Forum has planned another major step towards its contribution to the cause of Indian Coal Industry by organizing the second edition of “Coal Log India” series titled as “Coal Log India-22” at Kolkata on 2nd September 2022 with theme “Coal Logistics Optimization – Challenges and Solutions”.

The main thrust of the second edition “Coal Log India -22” would be to assess the possibility of optimization in the utilization of existing Logistical Infrastructure, challenges therein and solutions therefore, apart from looking at future needs and modernization of existing infrastructure.

This Event has been planned to bring together multiple stakeholders-Mining Companies, Captive/ Commercial Coal Block Operators, Bulk Coal Consumers, Coal Carriers by Road, Sea, Rail etc, State Mining and Mineral Departments, State Electricity Generation and Distribution Companies, Solution providers and Regulators of Coal Industry.

### **About Organizers :**

#### **INDIAN COAL FORUM (ICF)**



The event is being organized by INDIAN COAL FORUM which is a non-profit, non-Government Organization structured like a premier Think Tank in the country on issues relating to Coal, which was set-up and registered under Societies Registration Act 1860 in 1997 by a Group of Senior Coal Professionals with the objective of highlighting the every-increasing role of Coal in the growth of National economy as the prime source of Commercial Energy in the country and working towards achievement of long range national objectives in all aspects of planning, development, efficient production and utilization of coal including promotion of Environment-friendly clean coal technologies and mine safety.

Towards achievement of these objectives, the Forum has been inter-acting with the Indian Coal Industry both in Public and Private Sectors and with Coal producers, Coal consumers and Government agencies connected with Coal. It has also been organising Seminars, Conferences, Webinars and Workshops from time to time on topical issues concerning Coal.

#### ***Aims & Objectives of the Forum***

The principal aims and objectives of ICF are as follows:

- To act as 'National Think Tank' of all aspects of Coal Industry.
- To serve as 'Voice' of Coal at National and International forums on issues related to Indian Coal Industry.
- To make suggestions in framing of India's Coal Policy within legal framework and Coal Development Plans.
- To act as facilitator for the Public and Private Sector Coal Companies, Government of India, State Governments and other Agencies for working together for achieving long range objectives in all aspects of Planning, Development, Safety, Efficient Production and Utilization of Coal including promotion of environmental friendly clean coal technologies.



- To remain in regular touch with The Coal and Associated Industries, Technical and Research Institutes, Management Development and Statutory Organisations and Trade Unions for exchange of ideas, collection and dissemination of information for mutual benefit and for improvement in the curriculum of educational institutions to match the needs of the Coal Industry.
- To collaborate with national bodies like MGMI, TERI, CIMFR, CII, FICCI, ASSOCHAM etc and International bodies like World Coal Institute, UNDP, World Bank, Asian Development Bank, UNIDO, World Energy Council, Professional Bodies with similar objectives in all major Coal producing countries and NRIs to help the Indian Coal Industry.
- To further dedication, fellow- feeling and professionalism amongst all people connected with Coal Industry by promoting ethical vision, to inculcate system development with emphasis on value based approach.

### *Dilemma*

Today, Indian Coal Industry is passing through critical times. On the one hand Coal has been declared as the prime culprit responsible for producing Green House gases leading to Global Warming and on the other dependence of India on Coal is increasing as the Primary Energy Source and the Fuel for more than 75% of Power Generation. The contradiction becomes more glaring when viewed against the background of India's commitment at Paris Conference to cut down the Energy Intensity per unit of GDP by 30-35% over the 2005 level.

At the recently concluded Glasgow Conference on Climate, It was with great difficulty that India could manage to dilute the Resolution for total “phasing out” of Coal by substituting this with “phasing down” of Coal.

But at the same time India has made commitments that :

- a) 55% of its Power will be from Renewables
- b) Renewables Capacity will be increased to 500 GW by 2030
- c) Energy Intensity per unit of GDP will brought down to 45% over 2005 level.
- d) India would achieve Net Zero emission by 2070
- e) India will reduce emission by 1 Billion Tons per year by 2030.

The other side of the picture is that the Country has Resources and a very vibrant Coal Industry qualified technical man-power and is capable of augmenting coal production to make the country self-sufficient and for as long as one can see - at least till 2050, Coal will continue to be the prime fuel for Power Generation.

We therefore have a dual challenge:

- Greening of coal production and utilization so that Paris and Glasgow commitments can be honoured.

- Establishing Indian Coal Industry as a positive contributor towards growth in Forest Cover in the Country.
- Clearing the name of the Coal Industry as a destroyer of productive land resource
- R&D efforts towards generating Metallurgical Coal from Non-coking Coal.
- Exploitation of CBM resources in the Indian Coal Deposits
- Improving the safety status in Indian Coal Mines simultaneously increasing the Coal Production to make the Country self-sufficient.

The deliberations at the Seminar will focus on ways and means of increasing production and reaching the Coal to the Consumers expeditiously and economically with Environment and Sustainability being factored in all activities relating there to.

### **BUSINESS MEDIA LINKS (BML)**



BML is a growth-driven company (part of Indus Exposium Group) which conceptualizes and organizes Conferences, Exhibitions and Events. BML offers the highest level of services with the Core Team of company having over 2 decades of experience working on these activities with 100 + Trade Shows across the world.

## PROGRAMME

8.00 - 9.30 Hrs	: <b>Registration</b>
9.30 Hrs - 11.00 Hrs	: <b>INAUGURAL SESSION</b>
<i>Compere &amp; Session Coordinator</i>	: <b>Shri N N Gautam</b> , Secy. General, ICF & Former Advisor, Ministry of Coal
<i>Welcome Speech</i>	: <b>Shri Alok Perti</b> , IAS, Chairman, ICF & Former Secretary (Coal)
<i>Introduction of Theme</i>	: <b>Shri U. Kumar</b> , Exec. President, ICF & Former CMD, SECL & NCL
<i>Key Note Speaker</i>	: <b>Ms Michelle Manook</b> , CEO, World Coal Association
<i>Guest of Honour</i>	: <b>Shri Arun Arora</b> , GM, Eastern Railways
<i>Chief Guest</i>	: <b>Shri Pramod Agarwal</b> , CMD, Coal India Ltd.
<i>Vote of Thanks</i>	: <b>Shri N N Gautam</b> , Secy General, ICF & Former Advisor, Ministry of Coal
11.00 - 11.30 Hrs	: <b>Tea Break</b>
11.30 - 13.45 Hrs	: <b>TECHNICAL SESSION - 1</b> <i>Coal Transportation - Railways, The Prime Mover</i>
<i>Session Coordinator</i>	: <b>Shri M N Jha</b> , Treasurer, ICF & Former CMD, SECL & CMPDI
<i>Chairman</i>	: <b>Shri N C Jha</b> , Former CMD, Coal India Ltd
<i>Co-Chairman</i>	: <b>Shri R P Ritolia</b> , Former CMD, Central Coalfields Ltd
<i>Speakers</i>	: • <b>Shri R K Jain</b> , MD, Dedicated Freight Corridor Corporation of India Ltd. (DFCCIL) • <b>Shri Manoj Kumar Gangeya</b> , ED (Planning), Railway Board, Ministry of Railways, Govt of India • <b>Shri B Veera Reddy</b> , Director (Technical) & Director (Marketing), Coal India Ltd. • <b>Shri S Chandrasekhar</b> , Director (Operations), The Singareni Collieries Company Ltd. • <b>Shri Amitava Das</b> , VP - Digitalisation & Projects, HINDALCO Industries Ltd.
<i>Questions &amp; Answers</i>	
13.45 - 14.30 Hrs	: <b>Networking Lunch</b>



14.30 -16.45 Hrs : **TECHNICAL SESSION - 2**

*Coal Transportation - The Other Modes*

**Session Coordinator** : **Shri P S Upadhyaya**, GC Member, ICF & Former Director, NMDC

**Chairman** : **Shri Sabyasach Hajara**, Former Chairman, The Shipping Corporation of India

**Co-Chairman** : **Shri S Chakraborti**, Former CMD, Eastern Coalfield Ltd.

**Speakers** : • **Shri Manish Singla**, Associate Director, Energy & Natural Resources, CRISIL Infrastructure Advisory  
 • **Shri S Samanta**, MD, SK Samanta & Co.  
 • **Shri Harman Singh Arora**, CEO Gtropy, A MapmyIndia Company  
 • **Dr. Manorajan Nayak**, Consultant & Advisor Supply Chain & Former GM, JSPL & Vedanta  
 • **Shri R S Rajhans**, Traffic Manager, Kolkata Port System, Syama Prasad Mookerjee Port

*Questions & Answers*

16.45 - 17.15 Hrs : **Tea Break**

17.15 - 18.30 Hrs : **PANEL DISCUSSION**

**Session Coordinator** : **Shri S K Grover**, GC Member, ICF & Former GM (Fuel Mgmt), NTPC

**Chairman** : **Shri Partha S Bhattacharyya**, Former CMD, Coal India Ltd.

**Panellists** : • **Shri P M Prasad**, CMD, Central Coalfields Ltd  
 • **Shri M K Singh**, ED (Coordination), Coal India Ltd.  
 • **Shri S N Tiwary**, Former Director ( Marketing), Coal India Ltd.  
 • **Shri V K Arora**, Chief Mentor, KCT Group  
 • **Dr. Sandeep Pai**, Sr. Research Lead, Centre for Strategic and International Studies, USA

18.30 - 18.40 Hrs : **Event Closing Remarks & Recommendation** by **Shri P S Upadhyaya**, GC Member - ICF & Former Director, NMDC

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GAC Shipping



## Coal Log India 2021 - Retrospect

Indian Coal Forum, a Think-Tank devoted to the cause of Coal Mining in India has organised an International Conference and Expo – “COAL LOG INDIA -2021” with the theme “One Billion Tons - Logistical Challenges” on 3rd December 2021, at Hotel The Stadel, Kolkata along with Business Media Links.

Coal Log India 2021 which was held at Kolkata on 3rd December 2021 was a tremendous success with participation by close to 160 Top Coal Professionals and Representatives from Coal Producers, Users and Traders. Simultaneously, the Seminar and an Expo was also organized in which 11 Exhibitors participated and the pavilions attracted good foot falls.

The Seminar started with an inaugural session and it was followed by two technical sessions at which very informative and well-researched papers were presented/presentations were made. These sessions were highly interactive and evinced keen interest from among the participants. These were followed by Panel discussion in which some Top Coal Professionals of India participated and gave their views on the Coal Logistics infrastructure as it stands and what they should be in future considering the plans for steady increase in Coal production and dispatches.

### Few Distinguished Speakers at CLI 2021

- **Shri Arun Kumar Arora**, GM, Eastern Railways (Chief Guest)
- **Shri Abraham Stephanos**, President, BCC&I & MD, Tata Steel Downstream Products Ltd. (Guest of Honour)
- **Shri S N Tiwary**, Director (Marketing), Coal India Ltd.
- **Shri S S Gehlot**, Addl. Member (Marketing & Business Development), Railway Board
- **Shri Alok Perti**, Former Secretary, Ministry of Coal
- **Shri Partha S Bhattacharyya**, Former CMD, Coal India Ltd
- **Shri Shashi Kumar**, Former CMD, Coal India Ltd.
- **Shri Sabyasachi Hajara**, Former Chairman, Shipping Corporation of India
- **Shri U Kumar**, Former CMD, NCL & SECL
- **Shri V K Arora**, Chief Mentor, KCT Group
- **Shri M K Singh**, ED (Coordination), Coal India Ltd
- **Shri Ghanshyam Singh**, President- Logistics, JSPL
- **Shri Peeyush Kumar**, OSD, Ministry of Coal, Govt of India
- **Shri N N Gautam**, Former Advisor, Ministry of Coal

**Major Participants at CLI 2021**

Coal India Ltd, Central Coalfields Ltd, CMPDI, Eastern Coalfields Ltd, Mahanadi Coalfields Ltd, Northern Coalfields Ltd, South Eastern Coalfields Ltd, Western Coalfields Ltd, Indian Railways, Hindustan Copper Ltd., ABB, AIC-Nalanda Institute of Technology Foundation, AKA Logistics, BEML, Coal Sale Co., Didge India, Dilip Buildcon, Epoch Instruments, Essel Mining & Industries, Emveess Infraventure, GAC Shipping India, Geo-Chem Laboratories, HIS Markit, Hindalco Industries, IIT (ISM) – Dhanbad, Jindal Power Ltd, JSPL, Karam Chand Thapar & Bros (Coal Sales) Ltd, Komatsu Mining Corp, LCS Control, Mahalaxmi Group, Metals & Minerals Technologies, Mine Line, Mining Outcome Services - Australia, Pharos Shipping & Overseas Services, Poona Couplings, Raw Resources, SGS India, Sangita Sales, Smartchem Technologies, Tata Steel, Tata Steel Downstream Products Ltd, Trade Cloud Services, Vedanta, Volvo Trucks India and many more...

The recommendations that emerged from the Conference constitute a challenge for all those concerned with Coal Logistics have been thoroughly prepared and shared with Stake holders and Policy makers. The same has been placed here for the reference.

## Recommendations

A One-Day International Seminar/Expo, Coal Log India -2021 with the theme “One Billion Tons – Logistical Challenges” was organized by Indian Coal Forum on 3rd December 2021 at Kolkata.

Shri Arun Arora, GM, Eastern Railways was the Chief Guest and he inaugurated the Seminar. In his inaugural address he dwelt at length on the integral relationship between Railways and Coal and he observed that it was necessary for these two largest organizations in the country to move together to reach Coal to the consumers expeditiously and economically. He said that it was important since Coal is the prime energy source in the country and more than 75% of Power Generated in the country is dependent on Coal.

Shri Alok Perti, IAS (Retd.) Chairman, Indian Coal Forum welcomed the delegates, and Shri U. Kumar, Executive President of the Forum introduced Indian Coal Forum and the theme of the Conference.

In all, 15 very Learned Papers and Presentations were presented at the Seminar by Top Experts in their respective domains. Over and above these, 7 Top Professionals connected with Coal Logistics participated in the Panel discussions.

Based on the presentations and the Panel discussion the following recommendations have been prepared for submission to the Government and Policymakers.

1. **Rail Connectivity in Coalfield Areas** - Though, Railways came into India initially for transporting Coal only, its penetration even in Jharia and Raniganj Coalfields is not very deep. What makes matters worse is that even today there are significant number of Railways Sidings not long enough for accommodating full rakes. This makes supply of wagons and drawal of Loads cumbersome and time consuming.

In so far as developing and newly developed coalfields are concerned position is more difficult in as much as though the projects have been planned with their associated Railway Sidings, Construction of Sidings is taking a very long time. We therefore recommend that all the old Railway Sidings should be extended to full length for accommodating full rakes and construction of new sidings in newly developed and developing coalfields should be handled on top priority.

2. **First Mile Connectivity** - At most of the Mines this facility is outdated involving truck transport of Coal on bad and narrow roads passing through inhabited areas.

It is recommended that since human habitation cannot be removed easily, the possibility of constructing new wide and one-way traffic roads should be constructed avoiding inhabited areas.

Alternatively, wherever possible and the volume of production justifies it, the truck transport should be substituted by Belt Conveyors.

Last mile connectivity should also receive equal attention so that turn-over time of the rakes can be improved.



3. **Rapid Load-Out System** - For every mine or group of mines producing 5 million Tons per annum or more should be equipped with Rapid Out-Road System so that the entire rake can be loaded within half to one hour. This will reduce the turn-over time for the rake drastically and increase Railways' capacity.

4. **Coal Washing** - Indian Coal is inherently dirty and when the Railways carry one ton of Power Grade Coal it carries 400 to 500 kgs of non-coaly material. This situation can be improved upon by washing of Power Grade Coal.

Way back in late 80's, a well-planned drive was launched for all Power Grade Coal being transported over a distance 1000 kms or more from the Pit-Heads or for the Power Plants located in urban and critically polluted areas, only Coal having less than 34% should be used. Since this quality could be achieved only by washing of Coal, it became mandatory for Coal being used for these Power Stations being washed. Subsequently, this distance got reduced to 750 kms and then to 500 kms.

Though, progress in the matter was not very good it cannot be denied that some progress where being made. Unfortunately, however this mandate has been withdrawn by MOEF and whatever progress had been made in matters of washing of Power Grade Coal, has got nullified.

Washing of Power Grade Coal does not only reduce the burden on the Railway System but it also saves very substantially on freight and leads to great improvement in power plant efficiency. It is therefore recommended that Government should reconsider their latest decision in this regard.

5. **Maritime Transport of Coal** - Already about 30 Million Tons of Coal is being transported through Sea-Cum-Rail-Route from Mahanadi Coalfields Ltd to South. With marginal efforts this quantity can be doubled and this matter particularly the facilities at the Loading as well as Unloading Ports and the connected Rail facilities should be given prior attention.

6. **Riverine Transport of Coal** - The Country is blessed with the huge River System and some of the Rivers have the potential for being used for Coal transport in barges.

Each River System which passes through or near Coalfield areas should be closely examined for its utilisation for Coal transport.

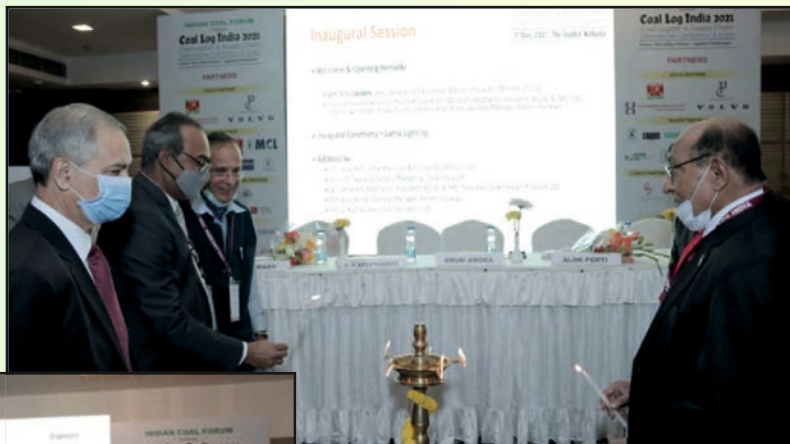
7. **Long Distance Belt Conveyor System** - Some Coal consumers located not very far from the Pit-Head carry Coal by road since they find it to be cheaper and a more assured system compared to the Railways.

Such transport system should be examined for replacement by long distance Conveyors which will be more efficient and Environment-friendly.

## GLIMPSE OF LAST EVENT

### Inaugural Session

Lighting of Lamp  
by Dignitaries



**L to R** - Sh. NN Gautam, Secy General - ICF; Sh. S N Tiwary, Director (Marketing), CIL; Sh. Abraham Stephanos, President, BCC&I & MD, Tata Steel Downstream Products Ltd (Guest of Honour); Sh. Arun Arora, GM, Eastern Railways (Chief Guest); Sh. Alok Perti, Chairman - ICF; Sh. U. Kumar, Exec. President - ICF

**L to R** - Sh. S N Tiwary, Director (Marketing), CIL; Sh. NN Gautam, Secy General - ICF; Sh. U. Kumar, Exec. President - ICF; Sh. Arun Arora, GM, Eastern Railways (Chief Guest); Sh. Alok Perti, Chairman - ICF; Sh. Abraham Stephanos, President, BCC&I & MD, Tata Steel Downstream Products Ltd (Guest of Honour)



Sh. S N Tiwary, Director (Marketing), CIL  
media interaction



### Technical Session - 1



**L to R** – Sh. Ankan Mitra, Tata Steel; Sh. S S Gehlot, Former Addl. Member (Marketing & BD), Railway Board, Sh. T K Nag, Former CMD, NCL; Sh. Shashi Kumar, Former CMD, CIL; Sh. Sabyasachi Hajara, Former Chairman, Shipping Corp. of India, Sh. V K Arora, Chief Mentor, KCT Group

### Technical Session - 2



**L to R** – Sh. N N Gautam, Secy General – ICF; Sh. C S Singh, T S to Director (T), CIL, Sh. R P Ritolia, Former CMD, CCL; Sh. R K Saha, Former CMD, CCL; Sh. S. Biswas, SKSL; Sh. Peeyush Kumar, OSD, Ministry of Coal (online presentation)

### Panel Discussion



**L to R** – Sh. M N Jha, Treasurer- ICF; Sh. S K Grover, GC Member – ICF; Sh. M K Singh, ED (Coordination) CIL; Sh. Partha S Bhattacharyya, Former CMD, Coal India Ltd.; Prof S P Banerjee, Former Director, ISM; Shri B Akala, Vice President- ICF

### Eminent Delegates



### Networking at Exhibition





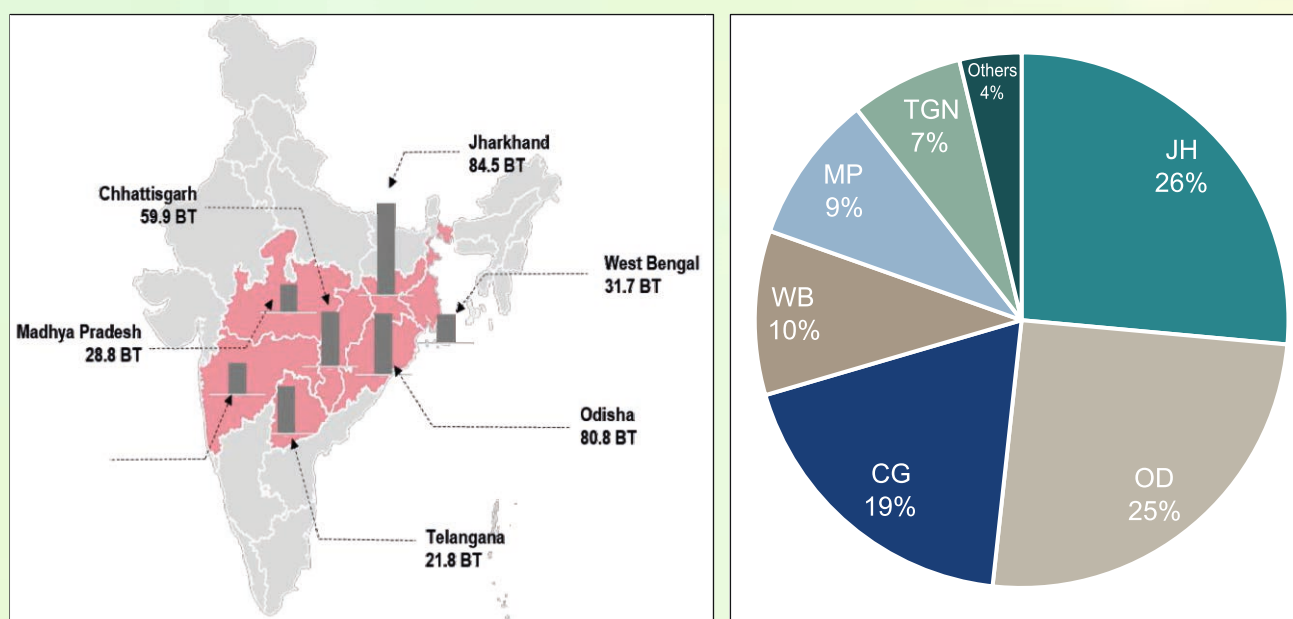
## Industry Article

# Coal Logistics Optimisation Challenges & Solutions\*

## 1. Introduction

### 1.1 Resources of Coal:

Coal is an abundant fossil fuel found across the globe with total proved reserves (as of 2020) estimated at over 1,074 BT. The country currently stands fifth in terms of total world coal reserves, accounting for more than 14% of the total reserves at ~149 BT. Further, it has the third largest identified resources of coal ~319 BT. Other countries with large resources include the United States (US), Russia, Australia, China, and Indonesia.



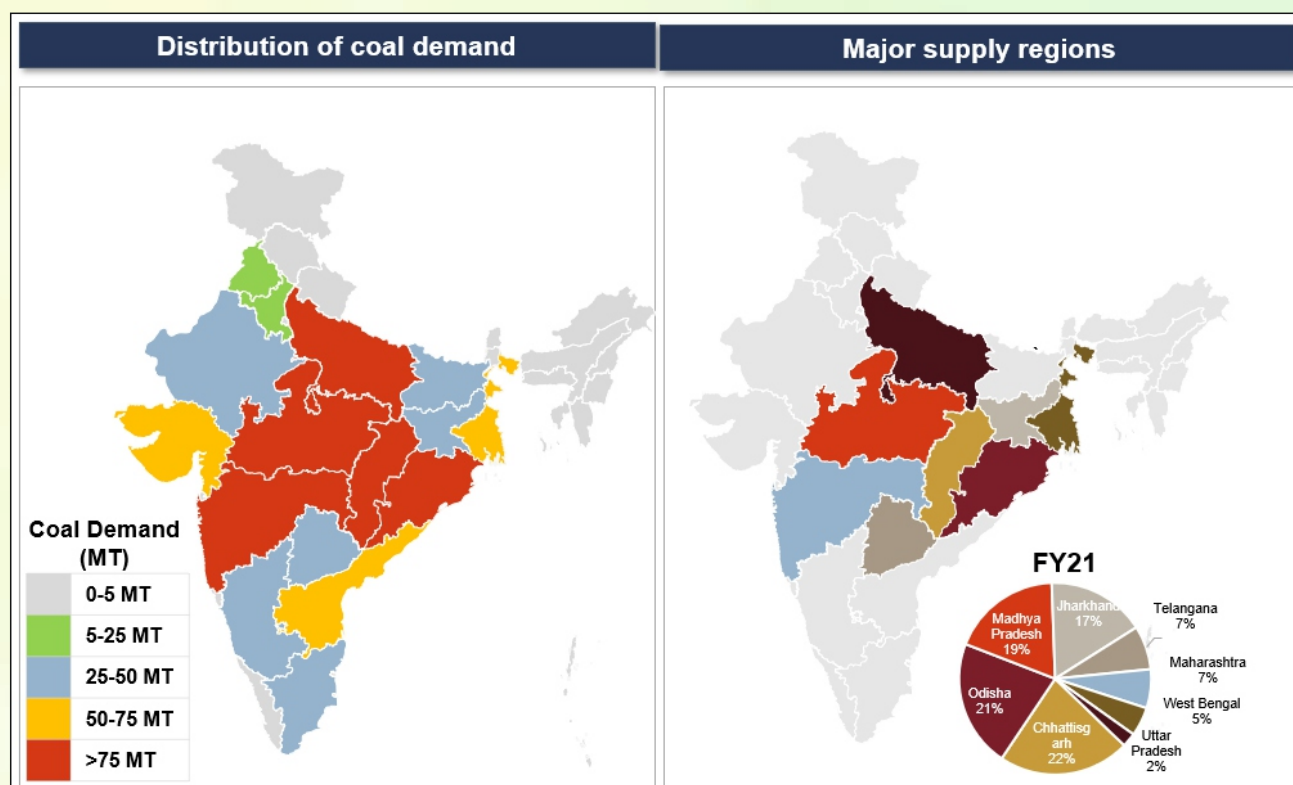
Source : Geological Survey of India, CRISIL Risk & Infrastructure Solutions (CRIS) analysis

**Figure 1 : Coal resources distribution in India**

### 1.2 Production of Coal

India is the second largest producer of coal in the world (next to China). It has the majority of coal production in the eastern and central parts of India, while it is consumed all over the country. Out of total 777 MT of coal being produced in India during fiscal 2022 [~622 MT by Coal India Limited (CIL), ~65 MT by Singareni Collieries Company Limited (SCCL) and ~90 MT by others], ~344 MT was produced in the eastern region, ~292 MT in the central region, ~67 MT in the southern region, ~56 MT in the western and ~18 MT in the northern region, while it was consumed all over the country, because of consumption in power (utilities), captive power plants (CPPs), steel, cement, brick kilns, paper, and others. Due to different regional production and consumption imbalances (as shown in the figure), transportation of coal is required over long distances and in bulk.

\*CRISIL Infrastructure Advisory.



Source : CRIS analysis

Figure 2 : Regional distribution of demand and supply of coal in India Distribution of coal demand Major supply regions

### 1.3 Importance of Coal for India

Coal is predominantly used in power, cement and steel sectors. Given limited resources of oil and gas, coal plays a significant role in India from the standpoint of energy security. It is the country's most abundant non-renewable fuel. Coal-based thermal power plants continue to dominate electricity generation in India, accounting for ~76% in fiscal 2022. It is an important contributor to the economy, too, as coal mining and power generation are two of the largest industries in the country, accounting for around 10% of the country's industrial production. They directly and indirectly employ around 3.6 million people. Power and heat generation account for over two-thirds (67%) of coal consumption, followed by iron and steel production (almost 20%), cement (around 5%), and other industries such as fertilisers, pulp and paper, non-ferrous metals, and chemicals (the balance 8%).

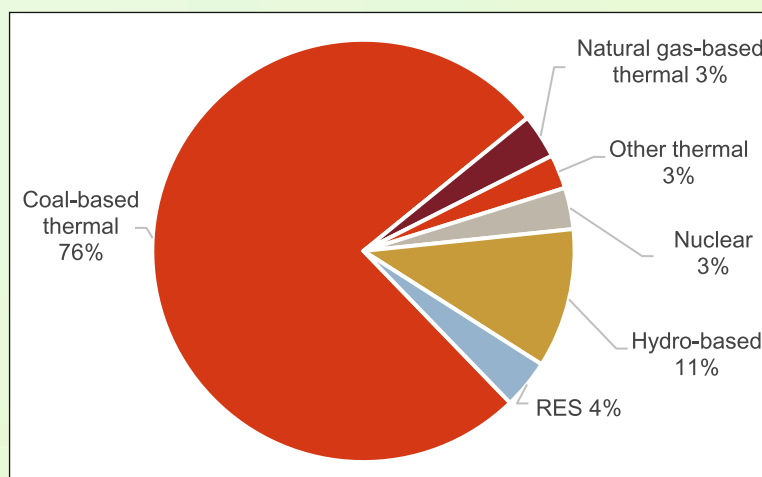
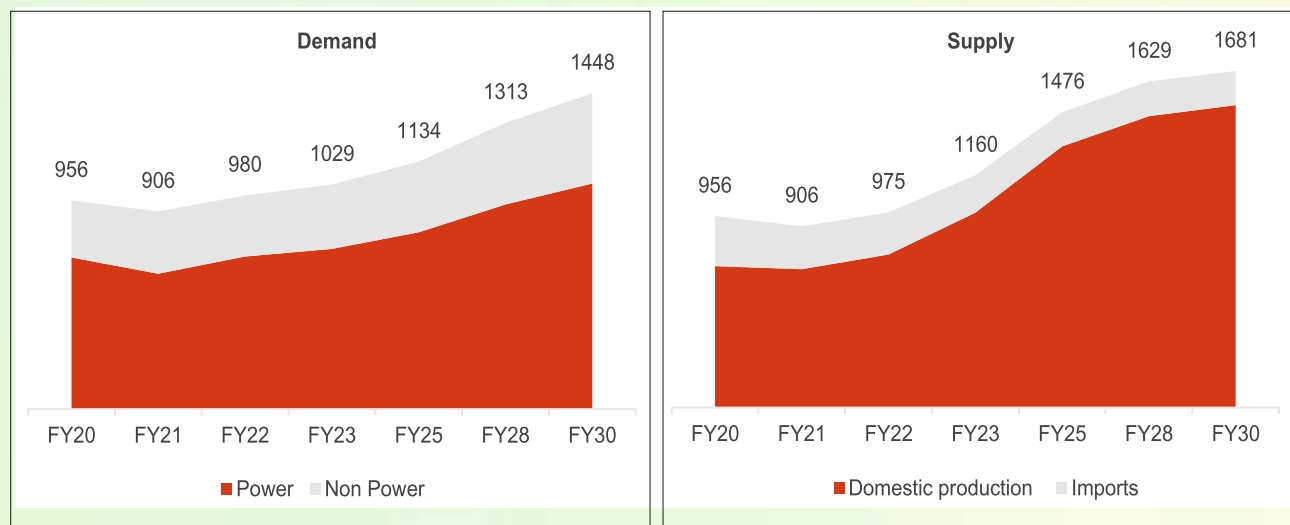


Figure 3 : Power generation mix of India

#### 1.4 Coal demand and supply in India by 2030

The share of coal in the total energy supply is expected to remain at 50% of the total basket, even past 2040. It is projected that the coal production in the country will increase by ~95% to 1511 MT in fiscal 2030 compared with ~777 MT in fiscal 2022. Further, the overall coal demand in the country is expected to rise 48% from 980 MT in fiscal 2022 to 1,448 MT in fiscal 2030. Thus, the total coal to be transported will grow nearly one and a half times in the next eight years. Hence, the logistics of coal must be strengthened to ensure efficient transportation of coal.



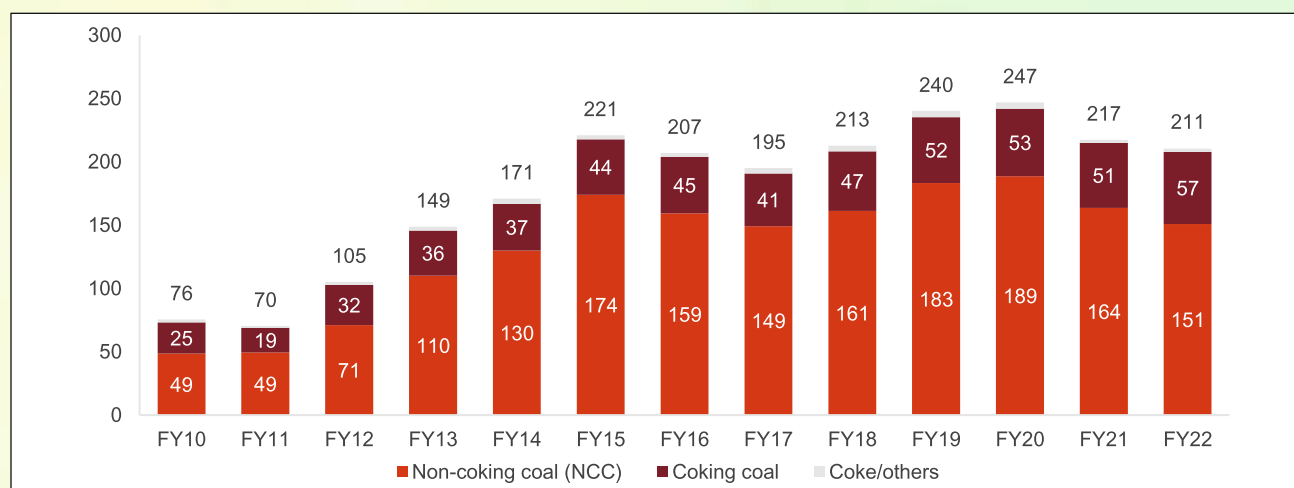
Source : Ministry of Coal (MoC)

Figure 4 : Overall coal demand and supply

On the imports front, coal is imported in India due to four major reasons. The first reason is that low-ash coking coal required for steelmaking is not available in India, and so it needs to be imported. Majority of metallurgical coal is imported from Australia. The second reason is that there are some coal-fired power plants, located along the coast, that are designed to use imported coal and the quality of domestic coal is not suitable for those plants. The third reason is that some power plants blend domestic coal with imported coal to achieve a better quality, increase efficiency and reduce pollutant emissions. Additionally, the fourth reason for the import of coal in India is to meet the demand-supply gap. India's imports majority of its thermal coal from Indonesia (65%) and Africa (25%). Other major suppliers are the United States, Mozambique, Russia, and Canada.

Total coal imports in India have been on an average 216 MT during fiscals 2016 to 2022. The demand and supply of coal in India is projected to increase to manifold by 2030 and hence requirement to transport will also be proportionally high. The next section explains the major modes of transports in India, their challenges and expected solutions.





Source : Coal directory, CRIS analysis

Figure 5 : Coal imports by India

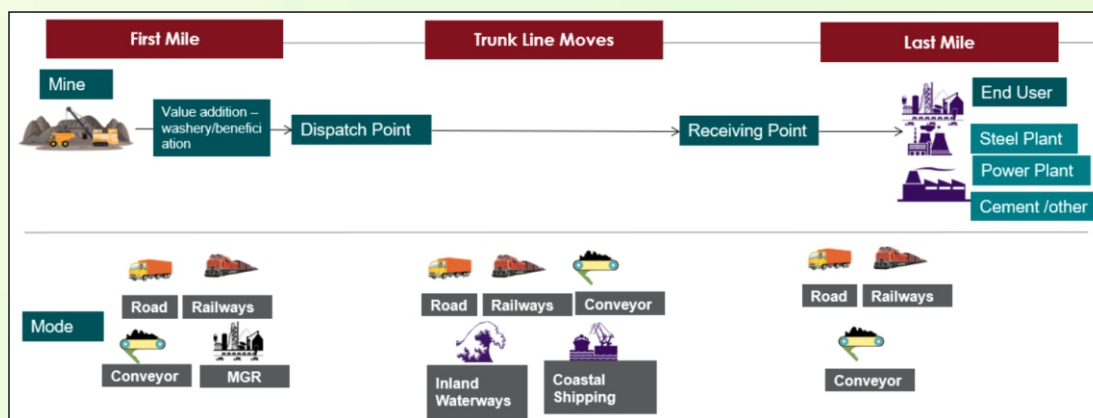
## 2. Coal logistics in India : Overview

The coal logistics in India involve first-mile connectivity, trunk-line connectivity and last-mile connectivity. Further, different modes of transportation are being used in each connectivity phase depending upon mine to mine and end-use plant to end-use plant basis.

First-mile connectivity involves movement of coal from mine to nearby washery or coal handling plant for value addition. Subsequent to that, coal is moved to the despatch point, which can be a railway siding, port or inland waterways terminal using road, conveyor, merry-go-round (MGR) train and rail.

The trunk-line connectivity involves movement from despatch point to the end receiving point. This movement of coal can take place through road, railways, conveyor, inland waterways, and coastal shipping.

The last-mile connectivity involves movement of coal from receiving point to the end user that can be steel/power/cement/other plants. This movement of coal can take place through road, railways or conveyor.

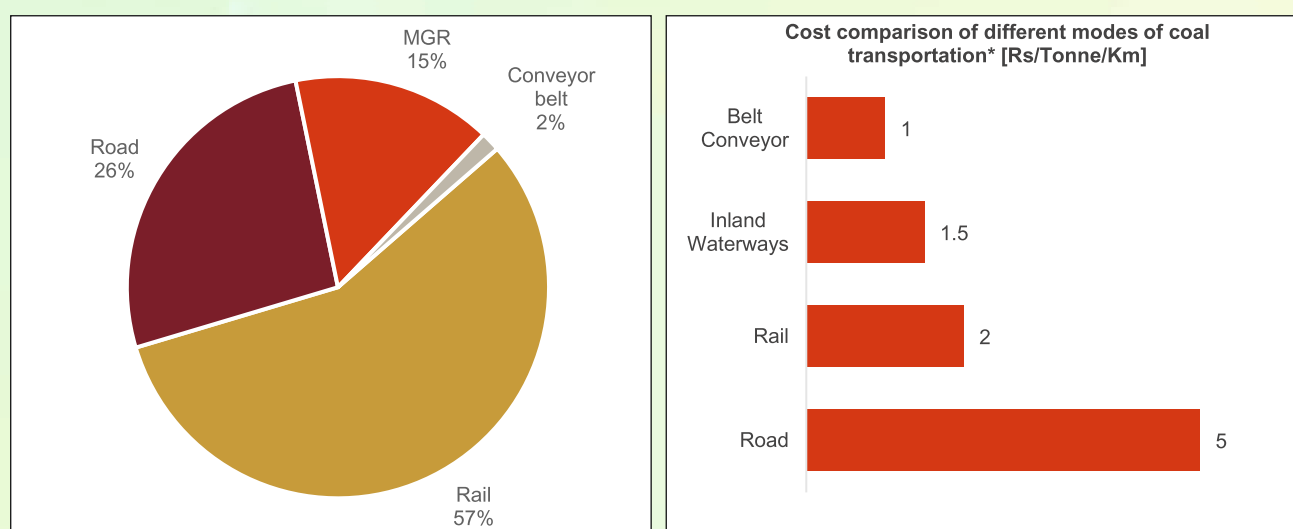


Source: Draft coal logistics policy, Ministry of coal

Figure 6 : Coal logistics chain

## 2.1 Mode-wise breakup

Domestic movement of coal takes place through railways, roads, merry-go-round (MGR) systems, conveyor belts and the rail-cum-sea route. In FY 22, CIL and SCCL combined accounted for ~89% of the total coal despatch in the country. Rest of the demand was met either through imports or private mines. Out of the total despatch of 725 MT, 412 MT was done through rail, 192 MT was through road, 111 MT was through merry-go-round (MGR) systems and 11 MT was through conveyor-belt systems. Dispatch through rail and roads increased in fiscal 2022 compared with fiscal 2021 by 11.9% and 49.6%, respectively; however dispatches through MGR and conveyor-belt systems were on a decline in fiscal 2022, compared with fiscal 2021 by 0.6% and 7.6%, respectively. Further, a small quantity of coal was also transported through inland waterways of India. The cost of coal transportation via different modes are different. A belt conveyor is the cheapest mode of coal transportation, while road transportation is the costliest (comparison in the graph below).



\*Cost of road transportation is considered as short distance of less than 100Km considering two-way fare is charged by transporter. This may vary from state to state and location to location depending upon many other factors as well.

Source : Indian Railways, Inland Waterways, CRIS Analysis

Figure 7 : Mode wise despatches of raw coal FY22 (percentages)

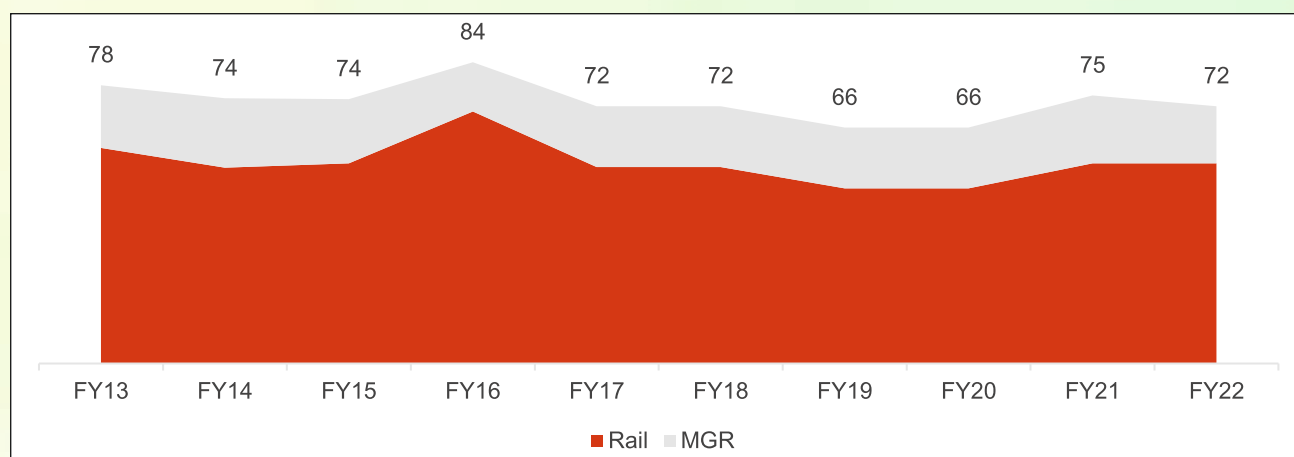
## 3. Mode-wise breakup- future projections

### 3.1 Rail transportation

Rail's share in total coal transport is the largest and for Railways too, coal transportation is the largest market segment. Coal consists of about 45% to 50% of Indian Railways' total freight business. Railways carried 653 MT of coal in fiscal 2022 (including imported coal), which is about 20.4% higher than that in fiscal 2021. In fiscal 2022, about 46% of railways total freight cargo was coal. Out of the 653 MT, 540 MT was supplied to thermal power plants and remaining to other sectors. About 95% of coal that is transported by railways comes from CIL/SCCL/others, while the rest is imported. Movement of coal through railways has been continuously increasing and it is projected to reach 1050 MT by 2031 and

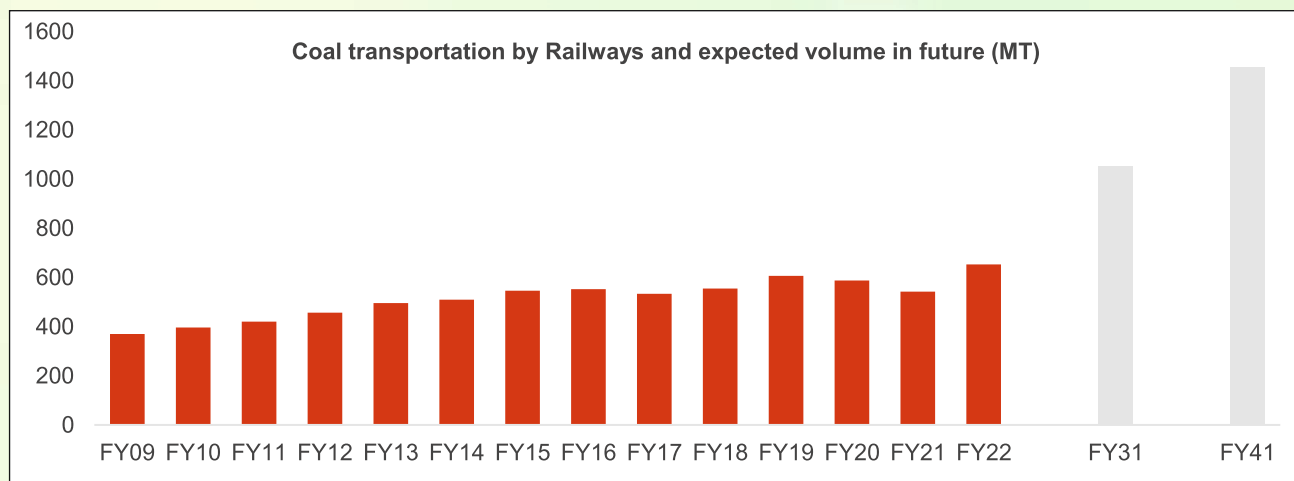
1455 MT by 2041 by national rail plan. This is a growth of about 60% in fiscal 2030 and about 120% by fiscal 2041, compared with actual freight of fiscal 2022.

In fiscal 2022, the total share of railways (including MGR systems) in transportation of coal from CIL was 72%. The overall share of railway transportation (including MGR systems) has been on an average 73%, since the last decade with a standard deviation of 5%.



Source : Ministry of coal

Figure 8 : Percentage share of railways in coal transportation from CIL



Source : National Rail Plan, 2020

Figure 9 : Railway freight growth trends

In line with the increasing demand, to ensure efficient logistics of coal, major expansion plans are proposed by Indian Railways to strengthen their network. There are a total of 26 ongoing projects across six major coal producing states. The total cost of these projects are about Rs 66,827 crore. The total length of the network for all the projects is about 4,167 km, with a combined capacity of 1,222 MTPA. Among the ongoing projects, the highest investment of about Rs 44,457 crore is in Jharkhand to construct a rail network, spanning 2,268 km.



**Table 1 : Summary of ongoing first mile and feeder route projects**

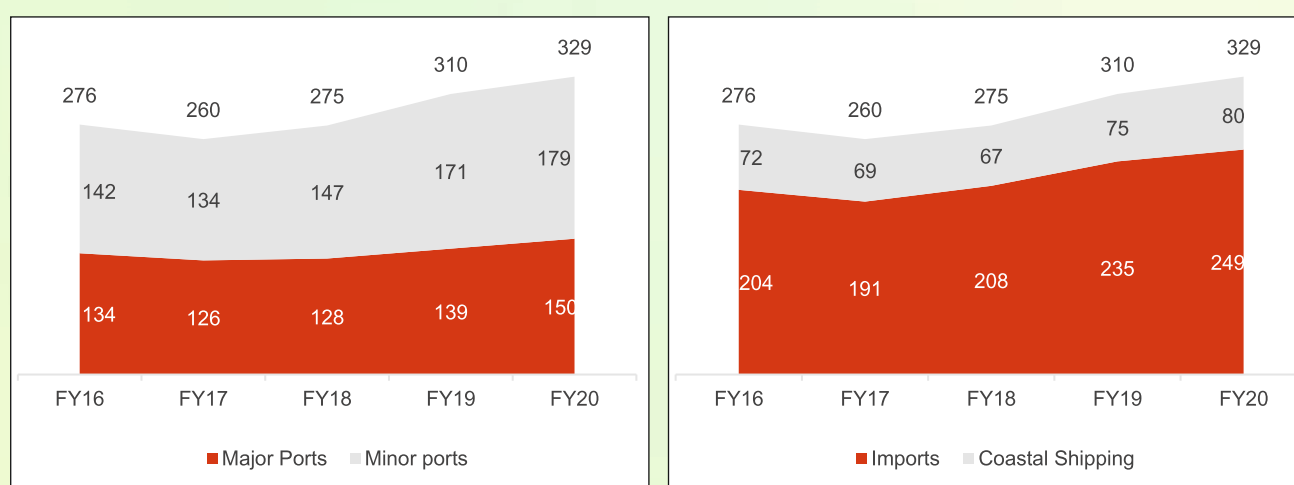
State	No. of Rail Projects	Total Cost (INR Crores)	Total Length (km)	Capacity (MTPA)
Telangana	3	2,993	257	39
Odisha	6	9,410	630	545
Jharkhand	10	44,457	2,268	311
Maharashtra	1	640	234	25
Chhattisgarh	4	7,040	473	216
Madhya Pradesh	2	2,287	305	86
<b>Total</b>	<b>26</b>	<b>66,827</b>	<b>4,167</b>	<b>1,222</b>

Source : Draft National Coal Logistic Plan, Ministry of Coal

As per the draft coal evacuation plan of Ministry of Coal, an additional investment of about more than Rs. 4,780 crore is required to construct a rail network of more than 380 km, with an additional capacity expansion of about 226 MTPA. The timely commissioning of the on-going projects is required to feed the increasing coal demand of the nation.

### 3.2 Shipping

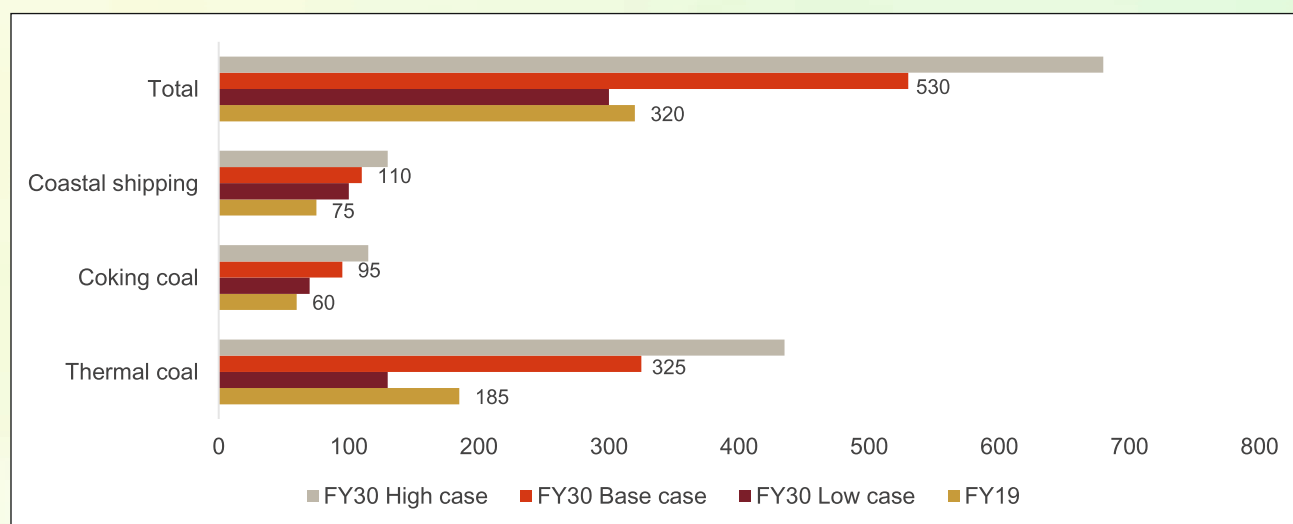
This mode of transportation handles all the imported coal and domestic coal transported through coastal shipping, which involves transporting goods from one port to other within the same country. Shipping is environment friendly and the transportation costs are also lower. The total coal traffic (imports, exports, and coastal shipping) handled across the ports of the country has been on a rise in the recent years. The total coal traffic increased 27% in fiscal 2020 compared with fiscal 2017. Coal traffic handled at minor ports increased 34% in fiscal 2020 compared with fiscal 2017, whereas that at major ports increased 19%. Further, imports rose 30% and coastal shipping increased 17% during the same period.



Source: Ministry of shipping

**Figure 10 : Port-wise and type wise total coal traffic (MT)**

The Ministry of Coal expects total coal imports to fall due to a rise in domestic production; however, coastal shipping is expected to increase. The import of thermal coal is expected to decline; however, that of coking coal is expected to rise. The Maritime India Vision 2030 of the Ministry of Ports, Shipping and Waterways has outlined low, base and high cases of traffic summary of thermal coal, coking coal and coastal shipping. These forecasts are summarised below.



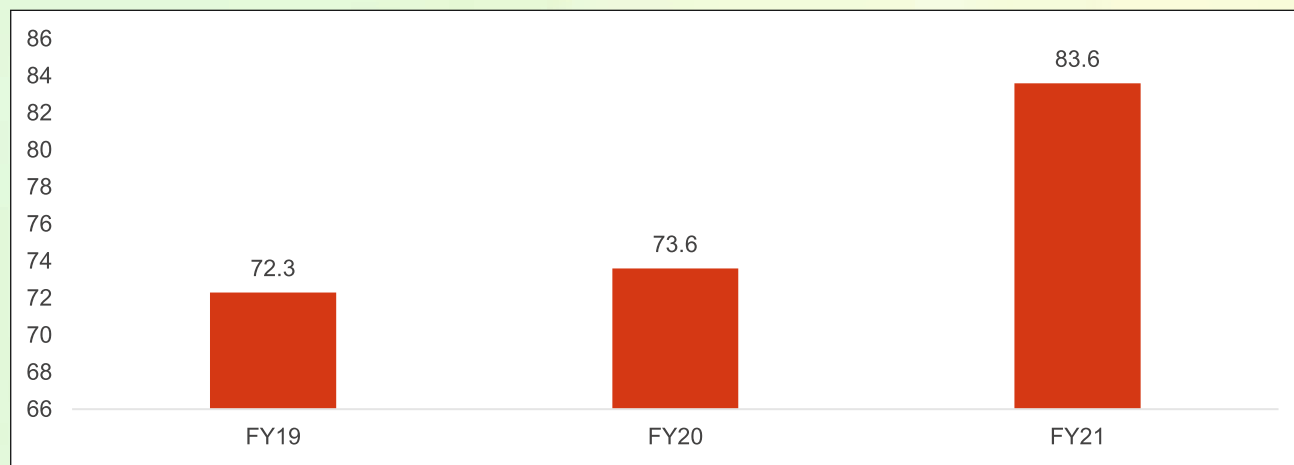
Source : Maritime India vision, 2030

**Figure 11 : Coal traffic forecast summary for 2030 (MT)**

### 3.3 Inland waterways

India has about 14,500 km of navigable waterways consisting of rivers, canals, backwaters, creeks, etc. Inland water transport (IWT) moves about 55 million tonne of cargo annually. A total of 111 waterways have been notified under the National Waterways Act of 2016. National Waterways 1 to 5 are critical for bulk movement of cargo. Among these, only National Waterways 1, 4, and 5 are important for coal transportation as they are near coalfields. National Waterways 1 stretches from Allahabad in Uttar Pradesh to Sagar Island near Haldia in West Bengal. Raniganj coalfield lies in this area. National Waterways 1 can be used to transport coal to end-use plants, which are near, but due to multiple handling issues, the transportation cost is not very competitive compared with other modes. National Waterways 4 and 5 are in the vicinity of Godavari Coalfields, Talcher and IB Valley Coalfields, respectively. Both these waterways are still in a developmental phase and can be tapped for transportation of bulk commodities, including coal, once they are operationalised in the next four to five years. For inland waterways to be feasible evacuation routes, both the coal mine and the end-use plant must be close to the terminals.

The traffic on national waterways has been continuously increasing in the past few years. It has increased about 16% in three years. Out of the 83.6 MT of cargo transported in fiscal 2021, iron ore accounted for 34%, coal and coke for 31%, fly ash for 8%, limestone for 4%, and steel for 3%. The remaining 3% mainly included sand, stone chips, cement, etc. Thus, about 26 MT of coal and coke were transported using inland water transport in fiscal 2021.



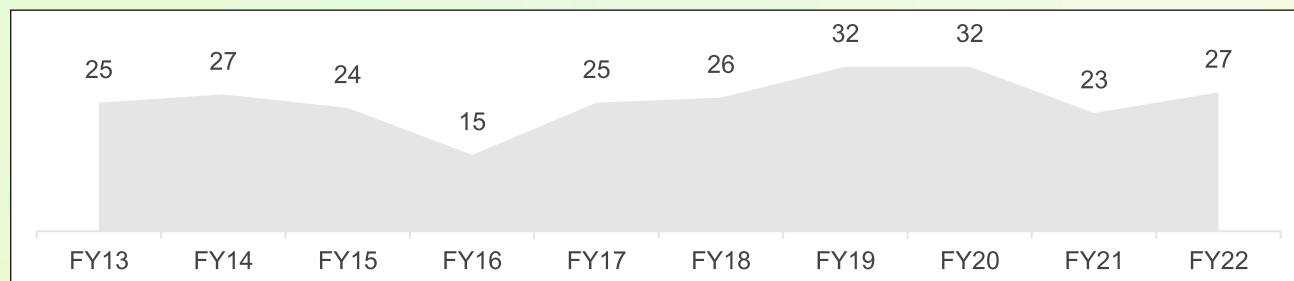
Source : Ministry of Shipping, Inland Waterways Authority of India (IWAI)

**Figure 12 :** Total traffic movement on national waterways (in MT).

There are 11 power plants (belonging to NTPC, BSPGCL, WBPDCCL, CESC) in the vicinity of NW-1 (within 10 km) in Bihar, Jharkhand and West Bengal. About 0.3-0.4 MTPA of imported coal has been consumed by these power plants over the last two years. So, NW-1 can be used to transport this coal. Coal demand of 1.00-1.25 MTPA exists in the cement industry in the North-East and 20-25% of this demand is met by imported coal coming from Haldia. Thus, the possibility of supplying coal to cement manufacturers in the region using coastal + IWT routes exists.

### 3.4 Roads and conveyor transportation

Road transportation is the most flexible mode of transportation and does not require huge capital costs; however, the operating cost of road transportation is the highest among all the different modes. The share of road transportation in coal evacuation from Coal India Limited (CIL) has been about 26% on average in the last decade.

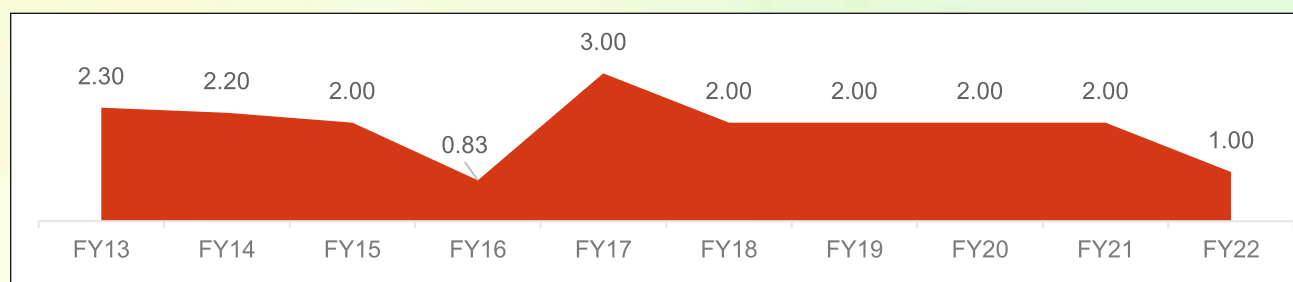


Source : Ministry of Coal

**Figure 13 :** Percentage share of roads in coal transportation from CIL

Conveyor systems can be used for first and last mile connectivity in coal transportation. Conveyors can be deployed in difficult terrain more easily than trucks or rail systems. They are a continuous mode of transportation, so their efficiency is higher compared with cyclical modes such as trucks and rail. Conveyors have a very low operating cost, are environment friendly, and highly efficient. They should be deployed wherever it is economical to use them. The share of belt conveyors/ropeways in coal evacuation from CIL has been about 1.93% on average in the last decade.





Source: Ministry of Coal

**Figure 14 :** Percentage share of conveyors/ropeways in coal transportation from CIL

The following chapter covers the major challenges and recommendations to improve the overall logistics infrastructure in India.

## 4 Challenges and Recommendations

### 4.1 Cost

Transportation cost is a major component in the landed cost of coal at end use plants. For example, it accounts for 25-35% of the cost of power produced by a plant located ~1,000 km from the mine it sources coal from. For a plant located almost 2,000 km from the coal field, the share of logistics costs is more than 50% of the landed coal cost. Further, coal accounts for the highest revenue realisation among all commodities transported by railways. As per the annual statistical statement of Indian Railways for 2019-20, the cost of hauling a goods unit by Indian railways was Rs 1.20 per tonne per km, and the revenue realisation for all commodities was Rs 1.57 per tonne per km; however, the revenue realisation from coal was Rs 1.86 per tonne per km. Thus, the markup on average cost of transportation of coal is more than 50%. Due to these high costs, domestic coal has become more expensive than imported coal in many cases, especially for power plants located near coastal regions, thereby affecting coastal infrastructure as well as foreign exchange outflows. The cost of road transport is already high compared with railways as road caters to short distance requirements, the coal carrying capacity of trucks in India is low, the cost of diesel is high, and there are no dedicated high-capacity roads for coal/mineral transportation, etc. Hence, the cost of coal transportation is a huge burden on end use plants, especially for those not located near coal fields.

The solutions to make coal logistics economically feasible and ensure domestic coal is cost competitive versus imported coal for coastal thermal power plants/end use plants are as follows:

- High-capacity railway wagons and dedicated freight corridors to be developed to carry a high load of coal from coal fields to end use plants. This will reduce the cost based on economies of scale.
- Use of the hub-and-spoke model i.e. two or more mines in close vicinity sharing common infrastructure for first mile connectivity will help reduce costs, but this needs to be planned as part of the mine allocation process only. A common railway siding can be constructed and used by two to three mines close to each other through the SPV mode.
- The need for highways/dedicated roads for mineral transportation using high-capacity trucks, especially within 50km of mines or up to rail sidings should be evaluated.

- The rail-sea-rail route can be evaluated and made cost competitive if railway freight charges are optimised. This mode can be deployed for costal thermal plants. Rail-national waterways-rail routes also have similar potential, and these must be evaluated further.

## 4.2 Availability

A few mines are not able to increase their output due to limited means for coal evacuation. As per estimates, ongoing railway projects in Jharkhand, Chhattisgarh and Odisha can potentially evacuate more than 300MT from coal fields of Central Coalfields Limited (CCL), South Eastern Coalfields Limited (SECL) and Mahanadi Coalfields Limited (MCL). Availability of haul roads is a major concern for private mines being developed and end use plants become unviable due to high capex, opex and landed cost of coal. Also, as the volume of coal to be transported is projected to double in the next eight to ten years, the existing logistics infrastructure must be ramped up to handle increased volumes. A few recommendations to improve the logistics infrastructure are given below:

- The railway network needs to be developed further to enhance coal evacuation. A few critical projects identified in the national coal evacuation policy need to be deployed at the earliest.
- The government should build a partnership with mining companies where it provides requisite clearances and mining companies provide the necessary capital. SPVs for rail projects need to be developed through equity shareholding from private companies with the remaining finances raised from the market. A toll policy can be formulated to ensure SPV road projects are financially viable.
- Faster clearances need to be provided to fast track belt conveyor projects
- Inland waterways should be developed, especially NW-1 to cater to high-capacity coal transportation

## 4.3 Time

Transportation time is a major bottleneck for coal logistics. Wagon turnaround times have become an issue for transportation through railways. Wagon turnaround refers to the average time taken for a wagon to complete its typical loaded trip and become available for loading again. Oversized coal shipments increase wagon turnaround time, resulting in higher freight costs via demurrage. A few suggestions to improve the time taken for coal transportation are given below:

- The Railways Information System (RIS) needs to plan for coal transportation in the future based on historical, seasonal and rainy season trends. It has to accordingly start advance booking of wagons with surcharges as well as penalty clauses for non-availability of wagons.
- The rapid load system should be developed for all mining projects with a capacity of more than 10MTPA on a priority basis. Technologies such as the automated truck loading system (ATLS) can help reduce wagon turnaround time. ATLS is an automatic truck loading and unloading system that facilitates automatic insertion and removal of minerals into/from trucks with minimal operator intervention.

- Increasing the average speed of wagons can also reduce the turnaround time. New wagon designs can be considered using lightweight aluminium body. It can increase the throughput from 68 tonne/wagon to 80 tonne/wagon.
- For transportation through waterways, the turnaround time depends on loading/unloading and shipping time. Proper planning at ports and coal dedicated docks can help address this issue.

## 5. Annexures :

### 5.1 Annexure 1 - List of ongoing first mile and feeder route projects to coal fields

State	Coalfield EPC	Project Name agency	Project Cost (Rs crore)	Length in km	Target date of commissioning	Capacity MTPA
Telangana	Godavari Collieries SER	Bhadrachalam – Sattupalli NL	928	56	2/1/2022 Forest clearance and LA are critical issues	5
		Balharshah Belampalli 3rd line	2065	201	Mar-24	17
		Belampalli Kazipeth 3rd line			Mar-24	17
Odisha	Talcher ECoR	Jarapada Budhapank 3rd & 4th line with a flyover at Talcher	810	101	March 2024, forest clearance and LA are critical issues	130
	ECoR	Budhapank Rajatgarh Salegaon 3rd & 4th line	1172	86	NA	130
	ECoR	Sambalpur-Jarapada doubling incl Talcher Angul A super critical project	1539	174	Mar-22	65
	JV	Angul Balram line	145	13	December 21.	25
	SECR	3rd and 4th line between Jharsuguda and Bilaspur	1974	206	Dec-23	130
	Deposit/SE Railway	Jharsuguda-Barpali Sardega rail link	3770	50.3	Doubling of rail line - December 2022, Connectivity for bulb - March 2026, double line flyover - December 2024	Presently 25 and will be extended to 65 by fiscal 2026



Jharkhand	North Karanpura ECR	Koderma Tilliya NL	300	65	30 km completed March 2022	23
	ECR	Gaya Kiul Doubling	1200	124	20 km completed March 2023	
	ECR	Kiul Tal Rajendrapul additional bridge and doubling	893	14		
	ECR	Barkakana Muri double line	870	58		43
	ECR	Tori Shivpuri railway line 3rd line/doubling commissioned	895	44.37	22-Nov	25 (long route)
	IRCON	Shivpur Kathautia line	1799.64	49.09	The project will be commissioned in 3 years after FC	25*
	Karanpura ECR	DFC-Dadri to Sonenagar & extension up to Koderma	30358	1318	2023	120
	RVNL	Third line between Barkakhana- Garwaha Road- Sonenagar	3406	291	24-Mar	25*
	Rajmahal Coalfield	Rampur Hat Nalhati (Muraroi) 3rd line	210	14		25*
	Auranga	Barkakana-Sonenagar 3rd line	4525	291	March 2024	25*
Maharashtra	Wardha Valley CR	Wardha Ballarshah 3rd line	640	234	Mar-24	25*
Chhattisgarh	Mand Raigarh SECR	Raigarh-Champa 4th line	2070	206	3rd line completed; 4th line March 2024	43*
		Champa-Naila 4th line				43*
	JV	Kharsia- Korichapar Dharamjaigarh		132	Kharsia Gharghoda Dharamjaigarh commissioned. Ghargoda- Gare Palma spur and 3 feeder routes will be commissioned by September 2021	65
	Korba, Gevra Coalfield	East-West rail corridor - Gevra Road - Pendra Road line	4970.11	135	23-Mar	65

Madhya Pradesh	Singrauli Coalfield	Doubling from Singrauli to Shaktinagar via Karaila Road	Rs 529	45	23-Mar	43*
	IRCON	Doubling Singrauli Madhaiya- Katni	1758	260	Mar-23	43*

Source: Draft National Coal Logistic Plan, Ministry of coal

## 5.2 Annexure 2 - New projects required for efficient evacuation of coal

State	Coalfield	Project Name	Project Cost	Length in Km	MTPA
Telangana	Godavari Collieries	Karepalli-Bhadrachalam Road doubling	600	39	40*
Jharkhand	North Karanpura	Muri Chandil double line	1005	67	43*
	Rajmahal	Khana Sainthia 3rd line	1065	71	25*
		Nalhati Gumani 3rd line	870	58	25*
Chhattisgarh	South Eastern Coalfield Ltd.	Bilaspur Raipur 4th line/ DFC	1237	82.5	43*
Odisha	Talcher Coalfield	Outer coal corridor	To be estimated	60 approx.	50*

Source : Draft National Coal Logistic Plan, Ministry of coal.



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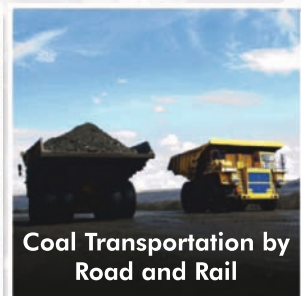
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## Speakers Profile



### **Shri Pramod Agrawal, IAS**

*Chairman, Coal India Limited*

Shri Pramod Agrawal, an Indian Administrative Service Officer of Madhya Pradesh Cadre 1991 batch, took over as Chairman, Coal India Limited (CIL), the world's largest coal producing company, on and from 1st February 2020. A Graduate (B.Tech) in Civil Engineering from Indian Institute of Technology (IIT) Mumbai (1986), Shri Agrawal completed his Post-Graduation in Design Engineering (M.Tech) from IIT, Delhi (1988).

Shri Agrawal underlined his priority as “to make Coal India a competitive, economically viable business entity, in the changing scenario, with greater emphasis on operational efficiency, quality and lowered cost of production”.

His impetus on procurement of heavy earth moving machinery, engagement of Mine Developers and Operators, pursuance of first mile connectivity projects, developing evacuation infrastructure is aligned to dovetail production and despatches seamlessly.

Amid the pandemic challenge Shri Agrawal led CIL with composure trying out many innovations and reaching out to customers to increase supplies and stepping up medical care for the safety of the employees.



### **Shri Arun Arora**

*General Manager, Eastern Railway*

Shri Arun Arora is presently posted as General Manager Eastern Railway. Prior to this appointment, he was posted as Additional Member (AM)/Railway Board since October 2020.

Shri Arora is an alumnus of Premier institutions - IIT Delhi, SCRA & University of Queensland. He holds Bachelor's degrees in Mechanical & Production Engineering and has done MBA from University of Queensland, Australia. He has been decorated twice with National Railway Award for outstanding contribution to railway working.

He played a key role as Divisional Railway Manager, Delhi in launching India's fastest conventional Train Gatiman Express between Delhi and Agra during 2016. He also played a key role as Principal Chief Mechanical Engineer, Northern Railway in successful launch of First Vande Bharat Exp between New Delhi and Varanasi during February 2019 & 2nd Vande Bharat Express between New Delhi and Katra during October 2019.

To fight with Covid pandemic, Shri Arora spearheaded the design and conversion of conventional coaches as isolation coaches. Under his leadership, NR workshops fabricated lakhs of PPE kits during the lockdown.

He has an extensive exposure to developed railway systems in the world - Germany DB Railway, SNCF French Railway, Italian Railways & US Rail Roads. He had also been deputed for senior management leadership programs to Bocconi Business School, Italy and Tepper Business School of Carnegie Mellon University, USA.

He is recognized over Indian Railway as a tough and focussed administrator who walks the talk and delivers successfully. He has been chosen to lead the Eastern Railway a prestigious & historic zonal railway of Indian Railway.

**Ms. Michelle Manook***CEO, World Coal Association*

Ms Michelle Manook is Chief Executive of the World Coal Association. She has held the role since July 2019. Previously, she was Head of Strategy, Government and Communications for Europe, Asia and Africa for the multinational company, Orica.

Her career spans over 25 years in senior roles in the energy, oil and gas and mining industries in both developed and developing markets. She has also held non-executive director positions in energy and healthcare sectors and early in her career, worked in policy and public affairs for The Government of Western Australia.

Born in Dhaka, Bangladesh, she is passionate about coal's role in delivering sustainable economic development, and how this can transform the lives and livelihoods of our global communities. She is looking to foster international collaboration and promote real clean coal technologies and innovation solutions to the world's challenges.

She holds a Bachelor of Arts in Psychology and a Post Graduate qualification both gained at The University of Western Australia.

**Shri Alok Perti, IAS (Retd.)***Chairman, Indian Coal Forum*

Shri Alok Perti is an Adviser and former Secretary in Ministry of Coal, Govt. of India. He is an IAS of 1977 batch (Assam-Meghalaya cadre), and has worked in the Ministry of Coal, Health and Welfare, Ministry of Defence etc at centre as well various departments in Govt. of Assam.

He was on the board of several Defence PSUs as official director when he worked as Joint Secretary in Ministry of Defence. He was also official director on the board of Coal India Ltd. and NLC when he was serving in the Ministry of Coal. He has also been a non-official part time Independent Director on the Board of Coal India Limited and various other companies,

Shri Perti holds a bachelor's degree in science and a master's degree in physics from the University of Allahabad and also completed a master's course in Social Planning and Policy in Developing Countries from the London School of Economics, UK. He was also a member secretary to the Kelkar Committee set up by the Ministry of Defence to suggest modifications to defence acquisitions, WHO consultant for conducting study and validation of National Immunization Programme in Bhutan and also served as a consultant to UNICEF to develop a material management systems for supply in Myanmar.





### **Shri Ravindra Kumar Jain**

*Managing Director, Dedicated Freight Corridor Corporation of India Ltd.*

Shri Ravindra Kumar Jain, IRSE, has assumed the charge of Managing Director of Dedicated Freight Corridor Corporation of India Limited on 11.12.2020. He is an officer of 'Indian Railway Service of Engineers' (IRSE) of 1986 batch. He completed his B.Tech. in Civil Engineering from MNIT, Jaipur and M.Tech. in 'Environmental Engineering' from University of Roorkee (now IIT, Roorkee).

Before joining DFCCIL, he was posted as Chief Administrative Officer/Construction for Eastern Railway, Kolkata. Prior to that he worked as Executive Director, Civil Engineering/Plg, Railway Board.

From 2017 to 2019, he was 'Divisional Railway manager, Samastipur (ECR). His tenure is remembered for Mithila painting at entire Madhubani station and then on the rake of Bihar Sampark Kranti. For this, his team was honored by Hon'ble Minister Railway and later also by Chairman, Railway Board. He was also been adjudged as Outstanding DRM in 2018 for manning large nos. of unmanned LCs in a very short time bound schedule. He worked as Chief Project Manager, Ajmer for Dedicated Freight Corridor Project and his Unit was adjudged as Outstanding Field Unit in 2011. He has worked in various construction projects for Gauge conversion and doubling as Deputy Chief Engineer at Jaipur, Ahmedabad and Mumbai.



### **Shri Manoj Kumar Gangeya**

*Executive Director (Planning), Railway Board*

Shri Gangeya is IRTS of 2000 batch. He is presently Executive Director (Planning), Railway Board. He was previously Director (Infra Connectivity) Niti Aayog and Director, Ministry of Environment, Forest and Climate Change.



### **Shri B Veera Reddy**

*Director (Technical), CIL*

Shri B Veera Reddy is currently working as Director (Technical) of Coal India Limited (CIL), a Maharatna PSU under the Ministry of Coal Since February 2022.

Prior to this, he was Director (Technical) Operations of Eastern Coalfields Limited from 01.01.2020 till 31.01.2022. He did his B. Tech in Mining from Kothagudem School of Mines, Osmania University in the year 1986 and obtained First Class Managers Competency Certificate by DGMS in the year 1990. He has also completed Master of Technology in Mine Planning from Kothagudem School of Mines, Osmania University in the year 2000.

Shri Reddy joined SCCL in the year 1987 and has more than 32 years of experience in coal mining, planning, procurement and operations. He worked in different capacities in the Mechanized Underground and Opencast mines and in Corporate Project Planning department of SCCL. Prior to his joining as Director (Technical) Operations of Eastern Coalfields Limited he worked as General Manager of Adriyala Longwall Project Area of the Singareni Collieries Company Limited.

Shri Reddy has published over 30 technical papers in national and international conferences.



### **Shri Prem Sagar Mishra**

*Chairman-Cum-Managing Director, South Eastern Coalfields Limited*

Shri Prem Sagar Mishra is Chairman-Cum-Managing Director of South Eastern Coalfields Limited. He completed his B. Tech (Mining) from Indian School of Mines, Dhanbad in the year 1987 and obtained First Class Certificate of Competency in the year 1990. He has obtained a Post Graduate Diploma in Business Law from the West Bengal National University of Juridical Sciences (NUJS), Kolkata. He has worked in different capacities in ECL, CCL and BCCL. He has also served as Director (Production & Planning) of Orissa Minerals Development Company Limited. He has attended Advanced Management Programme held at IIM, Calcutta, University of St. Gallen, Switzerland and Essec Business School Paris, France in 2014. He was also a part of CIL delegation to Istanbul ( Turkey ) for attending World Mining Congress 2011. He has also attended Management Training Programme at Administrative Staff College, Hyderabad and Advanced Management Programmes conducted by IICM at LBSNAA, Mussoorie.



### **Shri P M Prasad**

*Chairman-cum-Managing Director, Central Coalfields Limited*

Shri P M Prasad took charge as Chairman-cum-Managing Director (CMD) of Central Coalfields Limited (CCL) on 01/09/2020. He has over 37 years of experience in the mining industry. He is a mining engineer from Osmania University. He did M.Tech in 'Open-Cast Mining' from Indian School of Mines (IIT-ISM), Dhanbad. He also has a degree in law from Nagpur university.

Shri Prasad began his career as an executive trainee with Western Coalfields Limited (WCL), a subsidiary of Coal India Limited (CIL) in 1984. In 1994-95, he was instrumental in reopening of DRC mine, WCL which was affected by underground fire. For this remarkable job, he was given the 'Best Mines Manager' award by Secretary Coal, Ministry of Coal (MoC) and Chairman, Coal India Limited.

As General Manager in MCL, he was responsible for successful opening and operations of 'Kaniha Opencast Project' in 2010. He was instrumental in diversion of nallah at Hingula Opencast which unlocked coal reserve of 26.00 MT in the year 2014-15. Under his leadership New Railway Siding No. 9 in Talcher Coalfields was commissioned.

In May, 2015 he joined NTPC as Executive Director (Coal mining). He expedited award of Pakri Barwadih coal block (NTPC's first project) and floated NITs for other coal blocks of NTPC. In March 2016, he took charge as Executive Director cum Head of Project, Pakri Barwadih. His tenure saw the commissioning of greenfield project of Pakri Barwadih OC (20 MTY).

Sustainable mining being his priority, the contracts for 03 FMC (First Mile Connectivity) projects of Magadh, Amrapali & North Urimari of CCL were awarded in the last year after his taking charge of CMD, CCL.

Shri Prasad is renowned for his interpersonal skills and is a firm believer in teamwork. Under his guidance the company is destined to attain new milestones and scale new heights.



### **Shri Manoj Kumar**

*Chairman-cum-Managing Director, Western Coalfields Limited*

Shri Manoj Kumar, took charge as Chairman-cum-Managing Director, WCL on 01st of January, 2021. Prior to that, he was working as Director Technical in the same Organization since 29th November, 2018.

Shri Kumar is a Mining Engineer with distinction from the Indian School of Mines, Dhanbad -1985 batch. He obtained First Class Mine Manager's Certificate of Competency in the year 1989. He did M.Tech in Rock Excavation Engineering from ISM, Dhanbad in 1993-94 and is recipient of Gold Medal. He started his career in mining industry from WCL/SECL. He has been serving the coal industry for more than three decades. During this tenure, he served at WCL, SECL & ECL in various capacities.

He is known for his expertise in difficult underground mining methods and Continuous Miner Technology. His concern for contribution towards National Priorities, Sustainable Development and humanity forced a paradigm shift in outlook towards attainment of societal well-being. His personal initiatives through launch of MUDRA & SEHAT has created replicable niche in Coal India.





## **Shri Partha S Bhattacharyya**

*Former Chairman-cum-Managing Director, Coal India Limited*

He joined Coal India Ltd as Management Trainee in 1977, rose to become Chairman in 2006 and retired in Feb 2011. He steered CIL through Miniratna in 2007, Navratna in 2008 and finally Maharatna in 2011 - a unique feat by any PSU CMD.

In 2010, he spearheaded the Initial Public Offer (IPO) of 10% of CIL's equity. It met with resounding success and became a landmark event. The IPO is still the largest in India so far.

He is also credited with turnaround of BCCL in 2005-06 as well as introduction of coal sale by e-auction in 2004-05.

He authored WHEN COAL TURNED GOLD, published by Penguin in Aug 2018. The Foreword to the book was written by Shri Pranab Mukherjee, Former President of India.

Mr Bhattacharyya is currently the Vice Chairman of Peerless Group and Director on the Board of several companies in India and abroad.



## **Shri Nirmal Chandra Jha**

*Former Chairman-cum-Managing Director, Coal India Ltd.*

Shri Nirmal Chandra Jha is a Mining Engineer with an M. Tech degree from IIT(ISM), Dhanbad. During 37 years of work experience at Coal India Limited, he served the company in the capacities of Director (Technical), CMPDI; Director (Technical), CIL; CMD, SECL and Chairman, CIL.

Post retirement from CIL he contributed to the mining industry as CEO (Mining Business) of a private company; Chair Professor at the Mining Engineering Department of IIT(ISM); MD & CEO of Mozambique based Company of International Coal Ventures Limited and as Adviser (Coal) to Chairman, SAIL.

Shri Jha is the recipient of "National Geo-Science Award 2009 in Mining Technology"; "Eminent Engineering Personality of the Year 2011" award by the Institution of Engineers (India) and "D D Thakkar award" from MGMI for his outstanding contribution to the Indian Coal Industry. Sri Jha is a past President of MGMI and a Fellow of the Institution of Engineers (India). During his tenure with CIL, he was a member of the "Coal Mining task Force" of the "Asia Pacific Partnership on Clean Development and Climate".



### **Shri Sabyasachi Hajara**

*Former Chairman-cum-Managing Director, The Shipping Corporation of India Ltd.*

Shri Sabyasachi Hajara is a former CMD, The Shipping Corporation of India Ltd. (SCI) (2005-2012). During his tenure, the turnover of SCI increased substantially and the increase in the Gross asset value was twofold and SCI also received the status of 'Navratna' by Govt of India in 2008.

Shri Hajara passed out from IIM Calcutta and joined SCI in 1973. Since then he worked in SCI in various key positions, like General Manager, Project Leader, Director (P & A) etc

He is also on the Board of Directors of several companies like Adani Petronet Port Project Ltd, L&T Shipbuilding, Doehle Danautic India, ICL Shipping, Dubai, Dolphin Offshore Shipping, IIM Shillong etc.

At the India Shipping Summit 2007, he was conferred the “Innovator of The Year” award. The SHIPPING & MARINE 2008, supported by CHEMTECH Foundation, has conferred the “Business Leader of the Year Award – for Shipping” to him. Also at the Sailors Today Award ceremony on 21.04.12, he was conferred with prestigious “Life-Time Achievement award” for his outstanding contributions to the Shipping Industry for last four decades. At the 3rd All India Maritime and Logistics Awards (MALA) 2012, he was conferred the “Global Indian & Maritime Personality of the Year”. Lastly he was also conferred honorary fellowship/ honorary membership by the Institute of Marine Engineers and the Company of Master Mariners' respectively.



### **Shri U Kumar**

*Exec. President, Indian Coal Forum*

After Graduating from the prestigious Indian School of Mines, Dhanbad in Mining Engineering in 1958, he joined National Coal Development Corporation (NCDC) and rose to the rank of Dy. Chief Mining Engineer when NCDC was merged into Coal India Ltd. Moving forward and working as General Manager and Chief General Manager, he was appointed Director (Tech) in CMPDI and then CCL. Where from he moved as CMD to NCL, Singrauli and then to SECL, Bilaspur.

After his superannuation in 1997, he worked for two Private Sector Mining Companies and joined Essel Mining & Industries Ltd. of Aditya Birla Group as Advisor (Coal) in 2006 and is continuing as such.

He has served as Vice-Chairman, Standing Committee of Ministry of Coal under MMD and R Act for 6 years and Director, World Coal Institute, Member, Central Pollution Control Board, Government of India. National President, Mining Geological & Metallurgical Institute of India. President, All India Public Sector Sports Control Board and on Board of Governors, Indian Institute of Coal Management (IICL).

He has received several awards like Indira Priyadarshini Vriksha Mitra Award, Government of India. D.D. Thacker Gold Medal from MGMI, Distinguished Alumnus Award from Indian School of Mines, and Engineer of the Year Award by Institution of Engineers and authored large no. of papers on various aspects of Coal mining.

**Shri R P Ritolia***Advisor, India Power Corporation Ltd.*

Shri R P Ritolia, Advisor, India Power Corporation Ltd. is Former Chairman-cum-Managing Director of Central Coalfields Ltd and Former Advisor (Coal) to MD Tata Steel Ltd. An alumnus of IIT(ISM), Dhanbad, Shri Ritolia has had almost 50 years of experience in the coal mining industry in various capacities. In addition to being CMD, CCL, he has been the Director of Coal India Ltd. and Chairman of Coal Videsh Ltd.

Shri Ritolia is considered to be a result oriented executive and he has the credit of converting Central Coalfields Ltd from BIFR to a Mini Ratna status company by registering more than Rs. 1000 crores profit consecutively for three years.

Shri Ritolia has travelled extensively and acquired experience in the state of the art Mining Technology in various countries such as USA, UK, Australia, Germany, China etc. He has contributed a number of technical papers in various national and international forums and is the recipient of a number of awards including the most prestigious Dewan Bahadur DD Thacker Gold Medal Award for outstanding contribution in the coal mining industry.

He has been associated with a number of professional and technical institutes and is a Past President of Mining, Geological and Metallurgical Institute of India.

**Shri Smarajit Chakrabarti***Former Chairman-cum-Managing Director, Eastern Coalfields Limited*

After a brief period of postgraduate training, joined Western Coalfields Limited, a Coal India subsidiary, in 1973 as a junior executive trainee and worked in various capacities in WCL and other subsidiaries CMPDIL, NCL, BCCL and retired as chairman-managing director of Eastern Coalfields Limited in 2010.

Post-retirement from ECL, worked as a mining consultant up to 2014 for JSW Bengal Steel Limited, a JV company for development of three coal properties in West Bengal, and thereafter as a part-time consultant for others.

Had been an independent director for Central Coalfields Limited from 2011 to 2014 and is a life member of Mining, Geological and Metallurgical Institute of India.





### **Shri S N Tiwary**

*Former Director (Marketing), Coal India Limited*

Shri Satyendra Nath Tiwary retired as Director (Marketing), Coal India Limited in 2022. Previously he was General Manager (Marketing & Sales), CIL.

Graduating B.Sc. Engineering from Birla Institute of Technology MESRA with Distinction, Shri Tiwary was ranked 3rd in his batch. He also holds MBA Degree from the same Institute. Shri Tiwari began his professional career in Coal India Limited in 1986 after a short stint as Test Engineer in Hindustan Motors. With a career spanning over 36 years in Coal India he has garnered wide exposure in the entire gamut of Marketing & Sales operations having worked in various capacities of M&S Division in Eastern Coalfields Limited., Central Coalfields Limited and Northern Coalfields Limited.

Backed by over three decades of professional experience in the intricacies of Coal Marketing and Sales, Shri Tiwary has set the supply of increased quantity of Coal with improved quality through use of technology like Auger sampling and Auto ash analyser, as his priority objectives.

Shri Tiwary was also member of MCL, NCL & ECL Board, contributing in a big way on First Mile Connectivity.



### **Shri N. N. Gautam**

*Secretary General, Indian Coal Forum*

- Graduated BSc. (Hons.), Mining from Indian School of Mines, Dhanbad in 1962.
- Worked 30 years in Bengal coal Co. a British Company & Coal India Ltd in deep underground mechanized mines and large mechanized open cast mines.
- Worked as Director (Technical)/ Advisor (Projects) in Ministry of Coal, Government of India.
- Worked as Advisor UNDP/GEF-GoI "CBM Recovery and Commercial Utilisation Project" costing 100 crs. CBM from Vertical wells at Moonidih mine of BCCL was recovered and 1 MW power was generated.
- Past Positions held: Vice President, Mining Metallurgical Geological Institute (MGMI), Past President of MGMI Delhi Chapter, Advisor, ACB (India) Ltd.
- Currently Advisor JSPL, Chairman Coal group of India Energy Forum an NGO of Energy Experts, Secretary General, Indian Coal Forum, an NGO of Coal Experts, Secretary General of IIT (ISM) Alumni Association Delhi Chapter, Special Secretary (Events), MGMI-DC
- Distinguished Alumnus Award from Indian School of Mines Dhanbad
- Life Time Achievement Award of Energy and Environment Foundation
- Presented over 50 technical papers in International & National Journals and seminars.



### **Shri S Chandrasekhar**

*Director (Operations), The Singareni Collieries Company Limited*

Shri S Chandrasekhar is currently working as Director (Operations) at The Singareni Collieries Company Ltd. (SCCL).

He did his B.E in Mining from Osmania University in the year 1983. He has also completed MBA (HR) from Osmania University in First division with distinction and is holder of First Class Mine Manager Certificate of competency (Coal).

- Worked as Mine Manager of underground longwall project, which produced coal 1MT (during 1991-92) for the first time in Singareni Collieries Company Limited.
- Worked as Agent (Group of Mines) having various underground technologies including longwall, Blasting Gallery, Load Haul Dumpers etc.
- Worked as Staff officer/Technical Secretary to Chairman & Managing Director and General Manager (Co-Ordination) in office of CMD more than a decade. Co-ordinated with 34 departmental Heads in functioning of growing organization.
- Worked as Chief Public Relation officer of the company and coordinator of CSR activities as Full Additional Charge.
- Worked as Area General Manager, In-Charge of high capacity modern Adriyala longwall face which produced 1.83MT during 2015-16.

Shri Chandrasekhar has published many technical papers in national and international conferences.



### **Shri Manoj Kumar Singh**

*ED (Coordination)/Technical Secretary to Chairman, Coal India Limited*

At present, Shri Singh is working as ED (Coordination)/Technical Secretary to Chairman CIL, assisting Chairman CIL on Administrative, Technical and Policy Issues; maintaining liaison with Subsidiary companies, other departments of Coal India and Ministry of Coal. He also act as a think tank for strategic interventions of the company.

An alumni of BIT Sindri, Sri M K Singh has worked in Coal India Limited since 1985, managed Coal Mining Projects in the state of Jharkhand and Maharashtra, He led his teams to achieve pinnacles of success through human engineering, now holds the responsibility of Technical Secretary to Chairman, Coal India Limited a Maharatna CPSU.

He is members of Professional Institutions Like, MGMI, Institution of Engineers, AIMA Institute of Directors etc.

He has visited and attended major Coal & Mining events at China, Peru Poland, USA etc.

**Shri V K Arora**

*Chief Mentor, Karam Chand Thapar & Bros. (Coal Sales) Ltd.*

Shri V K Arora is a graduate in mining engineering from Indian School of Mines, Dhanbad. While managing the operations of coal mines belonging to erstwhile Thapar Group, he collected extensive experience in both, open cast and underground mines in some of the most efficiently run Units.

After having worked as President and after having put in 50 years of service with Karam Chand Thapar & Bros. (Coal Sales) Ltd., he is presently designated as Chief Mentor of the Company. KCT has a sizeable presence in logistics of domestic coal, handling about 40 M.T./year.

In addition, as Ex-Chairman of the Mining & Construction Equipment Division of CII, he has been regularly contributing thoughts and ideas towards the policy making in regard to the emerging coal scenario leading to the auction of coal blocks. As President of the Indian Coal Merchants' Association and Chairman of the Indian Mining Federation, he has played a critical role in representing the needs and concerns of the various coal consumers with regards to the marketing and distribution of coal by means of regular interaction with the Ministry of Coal, Ministry of Railways and Coal India Ltd.

**Shri Surojit Samanta**

*Managing Director, S. K. Samanta & Co. (P) Ltd.*

Shri Surojit Samanta is the Managing Director of S. K. Samanta & Co. (P) Ltd. an infrastructural engineering company, popularly known as SKSL. SKSL is a leading EPC Contractor, operating in various States in India having clientele like NCL, SECL, BCCL, MCL, ECL, SAIL, DVC, HEC etc.

After graduating from Manipal Institute of Technology, Shri Samanta practiced as an Architect for about a year with M/s. Stein, Doshi & Bhalla, New Delhi and then joined his family business, SKSL and since then is serving the Company in various capacities and is holding the position of MD since 2006. During this period SKSL's turnover excelled from a modest Rs. 10 crores to over Rs. 500 crores in recent years. SKSL, also, had set up a steel plant in Chhattisgarh with annual production capacity of 1.5 Lakhs MT.

Shri Samanta has served as VP, Builders' Association of India; Chairman, Eastern Region, ASSOCHAM; Council Member of Indo-American Chamber of Commerce; Member of ICC and FICCI so on and so forth.

Shri Samanta is member of Council of Architecture and India International Centre. He is also member of Elite Clubs like The Calcutta Club, The Bengal Club, The Delhi Flying Club etc. Shri Samanta is a keen traveler having travelled to almost all major places of tourism interest around the world.





### **Shri Harman Singh Arora**

*CEO & Co-Founder, Gtropy*

Shri Harman Singh Arora, CEO & Co-Founder Gtropy, the IOT arm of MapmyIndia. Shri Arora has been an entrepreneur for 10+ years with start-ups in the logistics, food and education space. He has also led a venture in the logistics tech space from inception to a market leadership position.

Shri Arora, an alumni of IIM, Lucknow and B. Tech (Electronics & Communication) from MIT, Manipal has also worked with Gossip & Bite, Axestack Software Solutions, 4D Education, MET Life, Fidelity Investments. Etc.



### **Shri Manish Singla**

*Associate Director, Energy & Natural Resources, CRISIL Infrastructure Advisory*

Shri Manish Singla is the Associate Director - Energy & Natural Resources at CRISIL Infrastructure Advisory. He has ~17 years of experience in energy/mining sector and holds Engineering degree and Masters' degree in Business Administration. He is also a certified project management professional.

Shri Singla has advised clients on a range of policy advisory & regulatory issues, transaction advisory services, due diligence, and strategy & business planning in different segments of energy and mining sector. He has worked across the value chain viz. energy fuels and generation/utilization of minerals and has advised clients in India as well as overseas.

In the current role, he is primarily leading the Coal & Mining related business in the Energy & Natural Resources Group of CRISIL Infrastructure Advisory. He is currently engaged in multiple assignments related to coal and mining sector for Central ministries, State governments, PSUs and private companies. He has worked on different types of auctions for different minerals (iron ore, limestone, bauxite, gold etc.) and for different concession types – mining leases and composite licenses. In total, he has experience of transaction advisory for 95+ major mineral blocks and 1500+ minor mineral blocks. In the past, he has assisted mining companies in undertaking due diligence and valuation for mineral assets/coal assets in South-East Asia.

He has worked with government agencies, power utilities, and private entities; and some of his key clients include Ministry of Coal, Ministry of Mines, Ministry of Commerce, Government of Karnataka, Government of Chhattisgarh, Government of Gujarat, Government of Tamil Nadu, and a number of PSUs engaged in energy and mining sectors.

**Shri Amitava Das***VP - Digitalization & Projects, Hindalco Industries Limited*

An erstwhile resident of Kolkata for near to 30 years, I am presently settled in Mumbai, working for Hindalco Industries Limited, at their corporate office under Logistics vertical.

I am a Mechanical Engineer from Jadavpur University (89 batch), an MBA from IISWBM(Cal) and did my Executive Masters in International Trade from Indian Institute of Foreign Trade.

I have worked for over 30 years across various Aluminum and Copper value chain- Primary & Downstream businesses, Mining & Minerals in various roles of Sales and Marketing, Procurement, Materials, Imports, Road and Rail Logistics, Stockyard and Warehouse management, Logistics Infrastructure, QMS/EMS, and Digitalization of supply chain.

Presently I am heading the Digitalization of Logistics and Supply Chain vertical, across the business and working in areas of Shipment Track & Trace, Telematics, Warehousing automation, Video Analytics, BI, trade finance and Blockchain in road, rail & shipping logistics and sustainability.

I am passionate about digital transformation, adoption, and adaptation of Industry 4.0 across supply chain ecosystem, which I believe will transform the power from numbers and be the next prime mover for industry and economy.

Literature, contemporary movies, and classical music are my natural escape routes.

**Dr. Sandeep Pai***Senior Research Lead, Centre for Strategic and International Studies, USA*

Dr. Sandeep Pai is senior research lead at globally renowned think-tank Center for Strategic and International Studies. His expertise spans energy transitions, coal sector dynamics, and just transitions. Previously, Sandeep has worked for many years as a journalist with leading Indian newspapers such as the Hindustan Times and Daily News & Analysis. In 2016, he was awarded India's most prestigious journalism award, the Ramnath Goenka Excellence in Journalism award.

He holds a PhD in resources, environment, and sustainability from the University of British Columbia and a joint MSc degree in environmental sciences, and management from Lund University, Sweden and Central European University, Hungary.

**Dr. Manoranjan Nayak***Consultant and Advisor, Supply Chain*

A Chemistry graduate, MBA in Marketing, Diploma in Materials Management, M.Sc in Counseling & Psychotherapy and PhD in Management.

- Born & brought up in Rourkela Steel City, worked at various locations pan India having cross-industry exposure of 25 years in Product & service organizations.
- Handled many senior positions in the Indian conglomerates as well as MNCs to my credit of rich experience in Coal, Alumina, Bauxite, Iron ore, Steel Logistics apart from telecom and 3PL Logistics services that includes Brownfield projects and start-up operations.
- Invited to speak on supply chain at various national & international forums which includes CII, IEL, CPSI, Aluminium India, Marcus Evans and MTBL as a keynote speaker / subject matter expert.
- A visiting faculty / external panel on Supply chain Management to universities.
- A qualified Counselor & Psychotherapist.

**Shri Ravi Shankar Rajhans***Traffic Manager, Kolkata Dock System, Syama Prasad Mookerjee Port*

Shri Ravi Shankar Rajhans, Traffic Manager in Kolkata Dock System, Syama Prasad Mookerjee Port, Kolkata has diverse experience in core Port operation, marketing and management of PPP projects combined with deep knowledge in Port Railway Traffic.

Post Graduate in Mathematics from Magadh University and Post Graduate Diploma in Computer Science & Application from Bihar College of Engineering, Patna joined as Management Trainee in Kolkata Port Trust has been instrumental in various developmental projects and innovative methods of operations.



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**Generating MegaWatts of Smiles**

## Company Profile (Exhibitors)

### **Ambey Mining Private Ltd. (AMPL)**

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E : info@ampl.in  
W : www.ampl.in



AMPL is one of the emerging Companies in the field of Coal Mining, Coal Handling, Infrastructure Development, Coal Washing etc.

The Company has multiplied its activities and increased focus in terms of productivity, quality of work and cost parameters at par with the international standards and having long term commitment with its dedicated team working round the clock throughout the country.

AMPL is engaged in providing services to the Coal Industry and Infrastructure development in various Mines of Coal India Ltd and its various subsidiaries & other Corporates like DVC, CESC-RPG Group and Mackintosh Burn Ltd. (A Govt. of West Bengal Undertaking).

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W: <https://metallogicpms.com/>; <https://mymetallogic.com/>

Contact Person : Ms. Monica Bachchan, Founder & CEO



Metalogic PMS is a 'NEXTGEN' Consulting, Project Management and media organization launched in 2017 with a mission to provide 'meta-logic' or decision logical support to the Steel & Mining Industry.

The Organization was started by two women entrepreneurs' i.e Monica Bachchan and Bharti Mishra. With over 12 years experience in the steel and mining industry in data mining, compilation, news & analysis, research assignments, events and disseminating information through various media/ social media channels, Metalogic's experienced team propels this new standalone venture for the success of the Indian Iron and Steel industry.

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Contact Person : Mr Bikash Choudhury, Associate, MOS Group, +919415014694



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**About MapmyIndia & Mappls (C.E. Info Systems Ltd)****[www.mapmyindia.com](http://www.mapmyindia.com) & [www.mappls.com](http://www.mappls.com)**

C.E. Info Systems Ltd (NSE: MAPMYINDIA; BSE: 543425) is India's leading advanced digital maps and deep-tech company, popularly known in India as MapmyIndia and globally as Mappls. The company offers proprietary digital maps as a service ("MaaS"), software as a service ("SaaS") and platform as a service ("PaaS"), including its advanced digital map data, software products, platforms, application programming interfaces ("APIs"), IoT and solutions to new-age tech companies, large businesses, automotive OEMs, government organisations, developers and consumers. The company has served more than 2000 enterprise customers since its inception. The company pioneered digital mapping in India in 1995 and has earned its market leadership position in this industry and built a strong moat by capitalizing on our early mover advantage, developing proprietary and integrated technologies, full-stack product offerings, and continuous innovation and robust, sustainable business model. The company also built India's very first internet mapping platform and portal, MapmyIndia.com (now called Mappls.com), in 2004. The company's free Mappls app for consumers provides the best and fully indigenous maps, navigation, safety, hyper-local and IoT gadget-enabled experience for Indian users.

MapmyIndia has built India's most comprehensive, accurate, feature-rich and continuously updated digital map data product down to address and urban building level detail pan India, covering all towns, villages, and the entire road network of the country. The company is building not just 2D maps but also 3D (with landmarks, terrains and city models), 4D (updating in near real-time), HD (high-definition and high-accuracy), RealView (geo-tagged 360-degree panoramas, videos and photos representing actual ground reality), and hyper-local geo-demographics data-rich maps, to continuously evolve its AI-powered Digital Metaverse Twin of the Real World. The company is also building digital maps for other regions in the world and has integrated global maps for over 200 countries into its Mappls platform. The company's platform provides extensive and comprehensive functionalities and an ever-expanding set of use cases, including mapping, location and navigation, geospatial data analytics, GIS (geospatial information systems) and AI, GPS tracking and IoT-based fleet management, logistics optimisation and workforce management, drone-based solutions, developer APIs, N-CASE solution suite (for Navigation, Connected vehicle telematics and services, ADAS safety i.e. advanced driving assistance systems, Shared and Electric) for Automotive & Mobility Tech (A&M), and Consumer tech and Enterprise digital transformation solution suite (C&E).



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W : www.skylarkdrones.com

Contact Person : Mr. Mrinal Pai, Co-Founder & MD



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## Smartchem Technologies Limited

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E : sarup.agarwal@equipcare.in

Contact Person : Mr. Sarup Agarwal, Director



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E : mohan@orbitindia.com

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## **Jyoti C Singh Deo, Artist**

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Bangalore 560076  
T: +91-9739712750  
E: jyotideo8@gmail.com  
W: <https://www.linkedin.com/in/otrfewhg>  
Contact Person: Ms. Jyoti C Singh Deo, Artist

Jyoti C Singh Deo is an artist who was born and brought up in Jharkhand and now resides in Bangalore. Her childhood memories are sprinkled with memories of the industrial town of Jamshedpur and coal mine areas.

Her art portrays Coal mines and all aspects related to it. She uses coal as an artefact and further depicts human lives, landscapes, machinery/tools through her art. Her art is a story telling of the mineral and the forgotten heroes who toil hard to keep the world moving.





## NOTES

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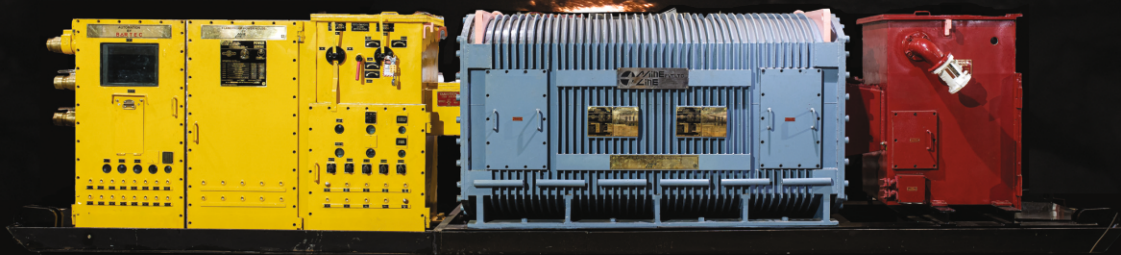
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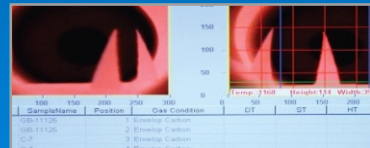
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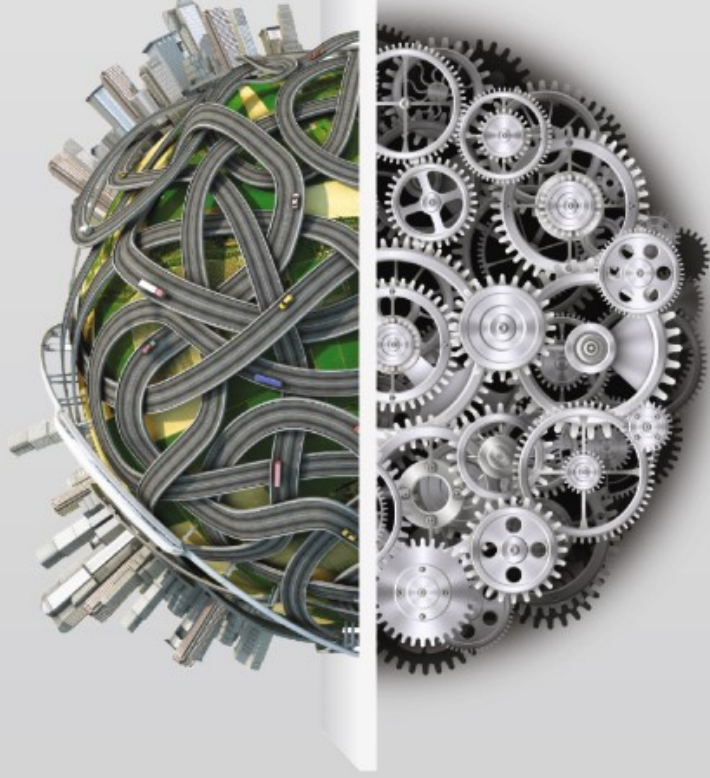
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To reap the benefits of the renewable energy revolution, as a part of the National Solar Mission, Government of India has set a target to achieve 1,75,000 MW of Solar Power by 2022. NLCIL has an ambitious plan to establish 6031 MW of renewable energy projects including 200 MW Wind Power Projects in Tamilnadu and various states. Presently, the Company has a total renewable energy capacity of 1421 MW which includes 1370 MW of Solar Power Plants and 51 MW Wind Power Plant. NLCIL is the first CPSE to cross 1 GW capacity in solar power generation and became the member of International Solar Alliance (ISA)

## Renewable Energy Projects under operation

- 141 MW Solar Power Projects (SPP) including Roof top solar project at Neyveli. A 10 MW Solar Power Project in Neyveli, under Mini Smart City Scheme is under construction.
- 1209 MW Solar Power Projects at Tirunelveli, Virudhunagar, Ramanathapuram and Thoothukudi Districts of Tamilnadu.
- 200 KW, R&D Pilot Scale Floating SPP in Neyveli New Thermal Power Project's Raw Water Reservoir.

- 20 MW SPP, integrated with 8 MWhr Battery Energy Storage System at South Andaman Island. This is the largest battery bank in India for catering the variation in solar insolation.
- 51 MW (34 x 1.5 MW) Wind Power Project at Tirunelveli District in Tamilnadu.

## Renewable Energy Projects under consideration

- A JV Company, "Coal Lignite Urja Vikas Pvt Limited" is incorporated on 10.11.2020 with Coal India Limited for establishing 3000 MW Solar Power Projects at various parts of the country.
- An MoU was signed with Assam Power Distribution Company on 09-08-2022 to develop 1000 MW Solar Power Project in the State of Assam
- Won bid for 660 MW Solar Power Projects, floated by Solar Energy Corporation of India (SECI) and Indian Renewable Energy Development Agency (IREDA)



## NLC India Limited 'Navratna' - Government of India Enterprise

Registered Office : 135, EVR Periyar High Road, Kilpauk, Chennai - 600 010.

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