

National Workshop on

*Unlocking India's Critical Minerals:
Pathways for Exploration &
Beneficiation*

MINERALYSE-2025

10th October, 2025

Venue: Hotel Radisson Blu, Ranchi



Organized by



Central Mine Planning & Design Institute Limited (CMPDIL)
A Mini Ratna Company & Subsidiary of Coal India Limited.
Gondwana Place, Kanke Road, Ranchi-834008 (JH)
www.cmpdi.co.in

From the Organizer Desk

Dear Participants,

*It is our privilege to welcome you to the National Workshop on **Unlocking India's Critical Minerals : Pathways for Exploration & Beneficiation**, hosted by Central Mine Planning & Design Institute Ltd. (CMPDIL), Ranchi.*

In an era defined by energy transitions, technological innovation and strategic resource planning, the role of critical minerals has never been more vital. This workshop brings together researcher, industry experts and policy makers to explore the challenges and opportunities that lie ahead in the critical minerals and REE landscape of India.

Throughout the workshop, we will delve into topics ranging from exploration, beneficiation of critical minerals and REE. The integration of cutting-edge technologies such as hyperspectral imaging, artificial intelligence & machine learning will significantly enhance the depth and impact of the workshop.

We extend our sincere gratitude to our distinguished guest, speakers and participants for contributing their expertise and enthusiasm. I encourage you to engage actively and share your insights.

Lets this workshop be a catalyst for innovation, collaboration and actionable progress – as we align our efforts with India's strategic vision for the development of critical minerals & evolution of REE industry.

Warm regards,
The Organizing Committee
CMPDIL, Ranchi

Workshop Theme

Use of Hyper-spectral Imaging in Critical Mineral Exploration

Use of Artificial Intelligence & Machine Learning in Critical Mineral Exploration

Advance Analytical Techniques and Their Role in Mineral Exploration & Beneficiation

Beneficiation of REE & Critical Mineral – Challenges & Pathway with reference to India

Beneficiation of Low Grade REE Ores Specially from Coal Mine Waste, Washery Rejects & Coal Combustion Products

National Policy for Critical Minerals

Image Courtesy:

<http://www.ars.usda.gov/is/graphics/photos/juno5/du5-1.htm>

Schedule Outline

Time	Session
9:00 – 10:00	Registration
10:00 – 10:45	Inaugural Session
10:45 – 11:20	Session 1 (Core topic)
11:20 – 11:50	Break (Refreshment & networking)
11:50 – 12:35	Session 2 (Core topic)
12:35 – 13:25	Session 3 (Core topic)
13:25 – 14:30	Lunch Break (Time to recharge & connect)
14:30 – 15:15	Session 4 (Core topic)
15:15 – 16:00	Session 5 (Core topic)
16:00 – 16:20	Break (Refreshment & networking)
16:20 – 17:00	Session 6 (Core topic)
17:00 – 17:40	Session 7 (Core topic)
17:40 – 18:15	Valedictory Session

Speakers

Yamuna Singh

Visiting Faculty, CEOAS
Hyderabad Central University

Topic: *Unlocking India' REE/Critical Mineral Potential: Resources, Challenges & Future Prospect*

Dr. Abdul Rauf Sheik

Principal Scientist, Institute of Minerals & Material Technology

Topic: *Extraction of REE/ Critical Minerals from Low Grade Feedstocks*

Anshoo Pandey

Director (Technical), Ministry of Mine

Topic: *National Policy Landscape for Critical Mineral Exploration & Beneficiation*

Dr. Asim Tewari

Professor, Dept. of Mechanical Engineering, IIT-Bombay

Topic: *Ore body Modelling using AI/ML: Special reference to Critical Minerals Mineralisation.*

B.R Mishra

General Manager & Head (Redt.) & Consultant (R&D), IREL (India) Limited

Topic: *REE Extraction Challenges and Outlook: Indian Scenario*

Prof. M.L Dora

School of Environmental Science, Jawaharlal Nehru University, New Delhi

Topic: *Advanced Analytical Technique and their Role in Critical Mineral Exploration & Beneficiation*

Nisha Rani

Director, Geological Survey of India

Topic: *Hyperspectral Insights: A new frontier in Mineral Exploration*

About us

Central Mine Planning & Design Institute Limited (CMPDI) is India's premier consultancy organization in the field of mineral exploration, mine planning, and environmental engineering. A **Mini Ratna (Category I)** company and a wholly owned subsidiary of **Coal India Limited**, CMPDI plays a pivotal role in shaping the nation's energy and mineral landscape. CMPDI offers end-to-end services - from geological exploration and resource evaluation to mine design, infrastructure engineering, and environmental management.

CMPDI also supports strategic initiatives of the **Ministry of Coal** and contributes to national goals in achieving **energy security, sustainable mining, and critical mineral development**. Its expertise also extends to **Coal Bed Methane, clean coal technologies, and international collaborations**, positioning CMPDI as a key enabler in India's transition toward a more resilient and resource-efficient future.

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