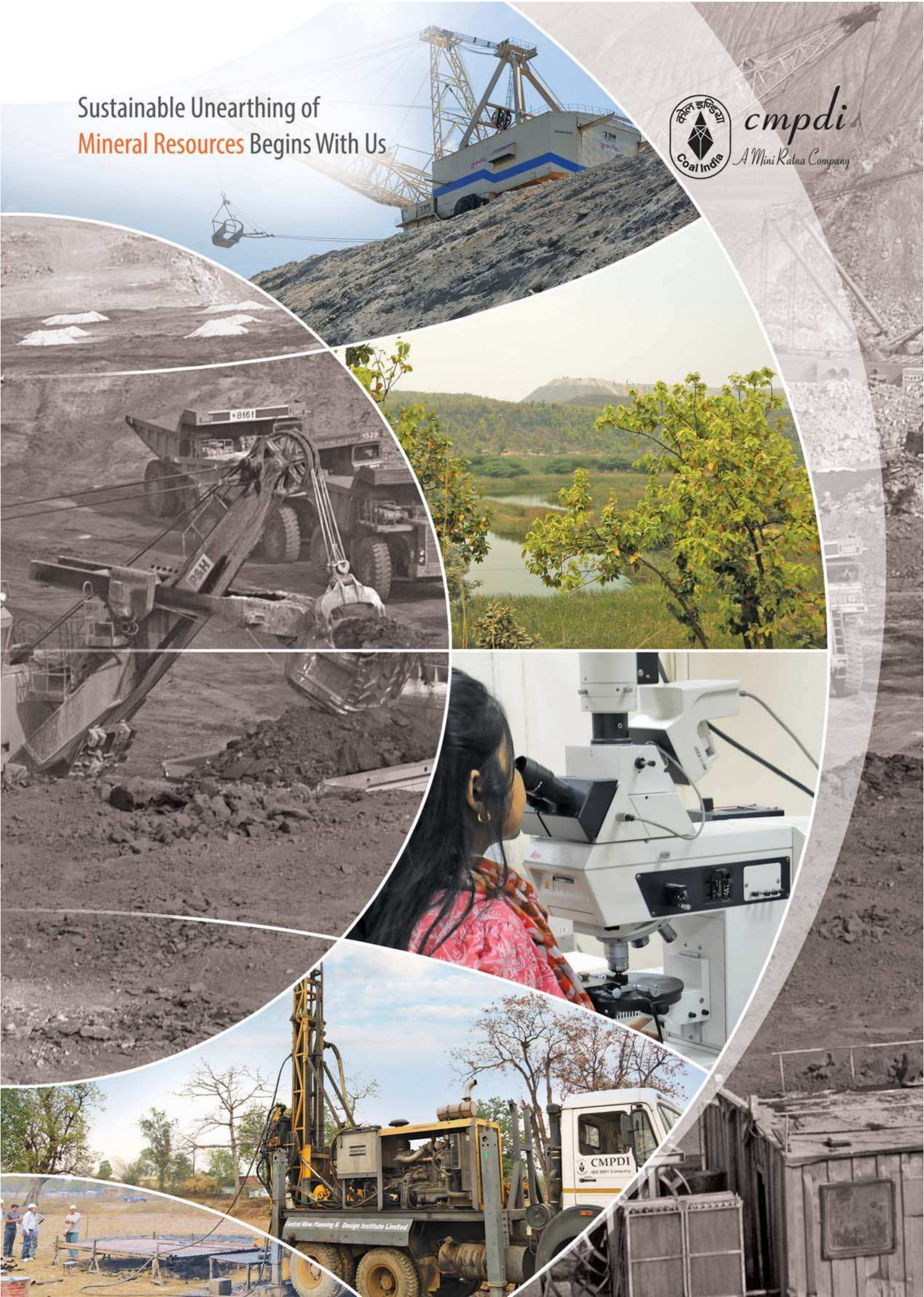


Sustainable Unearthing of
Mineral Resources Begins With Us



cmpdi
A Mini Ratna Company



About CMPDI

To keep pace with the growth and latest technological developments in the mineral and mining industry, there is need for a consultant who can facilitate selection of appropriate strategy-options to operate in today's competitive environment.

CMPDI stands as a symbol of a specialised consultant for all those who are in the mineral and mining sector. With four decades of experience and talent bank of more than 900 multi-disciplinary professionals having expertise in Mineral exploration, Mine planning & design, Infrastructure engineering, Environmental management, Mineral beneficiation and Management services- CMPDI is truly a unique and dynamic consulting organization.

Professionals at CMPDI combine innovation, experience and initiative to deliver fast and effective solutions in planning, implementation and management of projects. CMPDI is equipped with modern laboratory facilities for undertaking various analytical works to supplement its services.

It operates through its headquarters at Ranchi, the capital city of the State of Jharkhand, and seven strategically located Regional Institutes spread over six states.

The company is recognized as 'preferred' consultant by Indian clients including government and private sector.

Services offered

- Exploration & Resource Evaluation
- Mine Planning & Design Services
- Infrastructure Engineering
- Environmental Services
- Beneficiation Services
- Management Services
- Specialised Services
- Laboratory Services
- ICT in Mining
- Research & Development

Exploration & Resource Evaluation



CMPDI offers its services in mineral exploration, deposit modelling, resource evaluation, resource management, mining geology, hydro-geological & geophysical studies, geo-engineering investigations, etc.

To provide quality services, CMPDI is effectively utilising technologies like remote sensing, combination drilling (cored and non-cored), multi-probe geophysical borehole logging, seismic refraction survey etc.

CMPDI has already undertaken over 500 integrated exploration projects in varying geological and terrain conditions.



Services offered

Geological support for mining

- Production support or mine development drilling and prediction of faults and pinch/wash out
- Delineation of roof/ floor and dirt bands

Drilling

- Coring-Diamond rotary drills upto a capacity of 1000 m depth (N size)
- Non-coring-Direct rotary and DTH drills for hydrogeological investigations, dewatering, etc.

Geophysical surveys

- Multi-probe geophysical logging of boreholes, seismic surveys (HRSS/refraction), magnetic surveys, electrical resistivity surveys, gravity surveys, in-seam seismic surveys

Deposit modelling

- Using geo-statistical and geological software packages including MINEX and in-house developed CEMPGEODOC and SASLINT software

Resource evaluation

- Deposits of coal, lignite, manganese, iron ore (magnetite and Hematite), phosphorite, coal bed methane etc.

Resource management

- Strategic planning for future exploration depending on market demand
- Updation of reserve/resource of individual blocks or coalfields

Hydrogeological studies

- Systematic ground water investigations
- Mining hydrogeological studies

Geo-engineering

- Determination of strength properties of rocks and coal and RQD (Rock Quality Designation) to assess strength characteristics of strata

Assessment of coal based alternate / Non-conventional energy resources

- Creation of data packages of potential CBM blocks
- Resource evaluation of CBM/ CMM/ AMMD
- Formulation of policy guidelines for harnessing CBM resources
- Implementation of CIL-ONGC Consortium's venture in developing CBM in coalfields



Mine Planning and Design Services



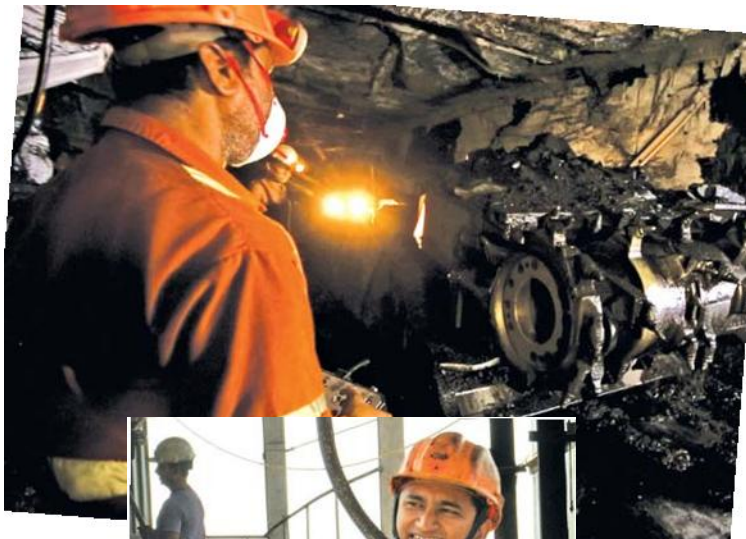
CMPDI is a premier consultant in open pit and underground mine planning & design in coal, lignite and other minerals. CMPDI has prepared over 900 mining project reports with individual project capacity up to 70 Mtpa.

Services provided for open-pit mine planning & design to CIL and its subsidiaries has helped these organizations to achieve an unprecedented growth in coal production from open-pit mines, from a level of 16.4 Mt in 1973-74 to around 500 Mt at present. CMPDI uses advanced software like MINEX for resource modelling, mine planning and scheduling.

CMPDI's experience in mechanised underground mining technology spans exploitation of coal seams from 1 to 20 m thickness, at different gradients from flat to 75 degrees; with soft to extremely hard coal; liable to spontaneous heating and gassiness and under varying roof strata conditions.



Services offered



- Master planning of coal fields
- Conceptual engineering studies
- Techno-economic studies
- Detailed Project Report/Feasibility Report
- Detailed engineering with working drawings
- Mine ventilation and transport planning
- Operational planning
- Mine Capacity Assessment including determination of capacity utilization of mines
- Performance analysis of equipment
- Prediction of surface subsidence through numerical modelling
- Preparation of tender documents

Major Projects Planned

PROJECT	COMPANY	COAL PRODUCTION Mtpa
Opencast		
Gevra	SECL	70.0
Magad	CCL	51.0
Kusmunda	SECL	50.0
Siarnal	MCL	40.0
Indragiri Lakhapur	MCL	30.0
Belpahar		
Gopalji	MCL	30.0
Dipka	SECL	25.0
Ashok	CCL	22.1
Underground		
Jhanjra UG	ECL	3.50
Tadoni	ECL	1.86
Shaktigarh	WCL	1.70
Madanpur	ECL	1.59
Churha ROD	SECL	1.35

Infrastructure Engineering

CMPDI's engineering services provide comprehensive infrastructure design and construction capabilities in the field of architecture, civil, electrical and mechanical engineering.

- CMPDI has planned more than 300 material handling plants upto 50 million tonnes per annum capacity
- Power Supply Systems: more than 190 substations/OHD lines upto 220kV
- Workshops: more than 150 of different specialities i.e. Central, Regional and Project workshops
- Townships: more than 25 for coal & non-coal sectors

Services offered

- Planning of large capacity, high speed bulk material handling plants
 - Turnkey execution of coal handling plants
 - Planning of sub-stations
 - Planning of workshops of various types and capacities
 - Township planning including roads, power supply, Water supply system, drainage, Water/sewage treatment plants etc.
 - Site selection for pit head thermal power plants based on remote sensing data
 - Rail corridor alignment through remote sensing
 - Techno-economic feasibility study of captive power plants based on pulverized coal and FBC technology
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Environment Services

CMPDI holds a position of eminence in the field of mine environment planning, impact assessment and management for mining and coal beneficiation projects, environmental engineering and state of the art environmental laboratory services. Some of the new areas in which CMPDI has diversified are environmental & hydrogeological studies for disposal of fly ash, development of air quality model, bio-treatment of industrial effluents, carrying capacity based development planning, watershed modelling, rainwater harvesting, issues related to policy framework, mine closure planning and climate change.

It provides entire range of environmental engineering services like planning and design of pollution control facilities, preparing EIAs and EMPs, OB dump reclamation plans, environmental master plans, progressive and final mine closure plans, etc. CMPDI is accredited by NABET and Quality Council of India, for its EIA/EMP services.

CMPDI has a network of six environmental laboratories in different fields. Its central laboratory at Ranchi is accredited with Central Pollution Control Board and received OHSAS (Occupational Health & Safety Advisory Services) certification. It has received accreditation of NABL (National Accreditation Board for Testing & Calibration Laboratories).

Services offered

Environmental quality monitoring

- Air, Water, Noise and Soil quality
- Stack monitoring

Environmental engineering

- Water treatment plants
- Effluent treatment and recycling plants
- Hazardous waste disposal site engineering
- Municipal effluent disposal site engineering
- Acid Mine Drainage remediation

Natural resource management

- Land use planning
- Rain water harvesting
- Watershed management plans

Regional planning

- Regional environment management plans
- Ecological restoration planning



Special studies

- Review of existing mining and environment policies, legislations, standards and mechanisms for monitoring compliance, institutional strengthening for regulatory and counterpart institutions.
- Study of environmental problems and action plan for restoration of environmental quality
- Mine closure planning
- Fly ash disposal studies



Beneficiation Services

CMPDI specializes in planning, design and construction of new washeries and modification of existing washeries for coal and mineral beneficiation.

The services offered are:

- Planning of coal and mineral beneficiation plant
- Preparation of feasibility/project reports including macro level analysis, washability studies, environmental impact assessment and techno-economic analysis
- Technical studies, performance evaluation and operation & maintenance related consultancy for existing washeries
- Pilot scale studies and trials

Management Services

Coal Investment Promotion Services

- Assistance to Government of India in identification and assessment of coal blocks for investments through public and private sector participation.

Management Systems Consultancy Services

- Consultancy for implementation, certification and maintenance of various International and National Management Systems like-ISO 9001, ISO 14001, ISO 27001, ISO 50001, ISO 17025, OHSAS 18001, SA 8000, NABH, etc.

Human Resource Development

- Knowledge Management and Training to CIL's workforce



Laboratory Services

CMPDI has well-equipped laboratories for carrying out investigations and analysis for geo-chemical, petrography, coal washability and geo-mechanical properties.

For coal and lignite characterisation, CMPDI has laboratories with highly skilled manpower and state of the art equipment. The data generated by these laboratories form the basis for characterisation and grading of coal in exploration, mine feasibility reports, washery designs and downstream utilisation.





Geo-chemical laboratory

Geo-chemical analysis like proximate & ultimate analysis, GCV determination of coal and lignite and other special tests are being carried through microprocessor based automatic gravimeter and analyser.

Petrographic laboratory

Petrographic analysis is carried out for coal, coke, source rock evaluation for hydrocarbons, oil shales and coal bed methane assessment through sophisticated microscopes. Mineral phases in coal, rocks and metals is identified through X-ray diffractometer. Micro area analysis and cleavage studies for CBMD are carried out through Scanning Electron Microscope. All the petrographers are accredited by International Committee for Coal and Organic Petrology (ICCP).

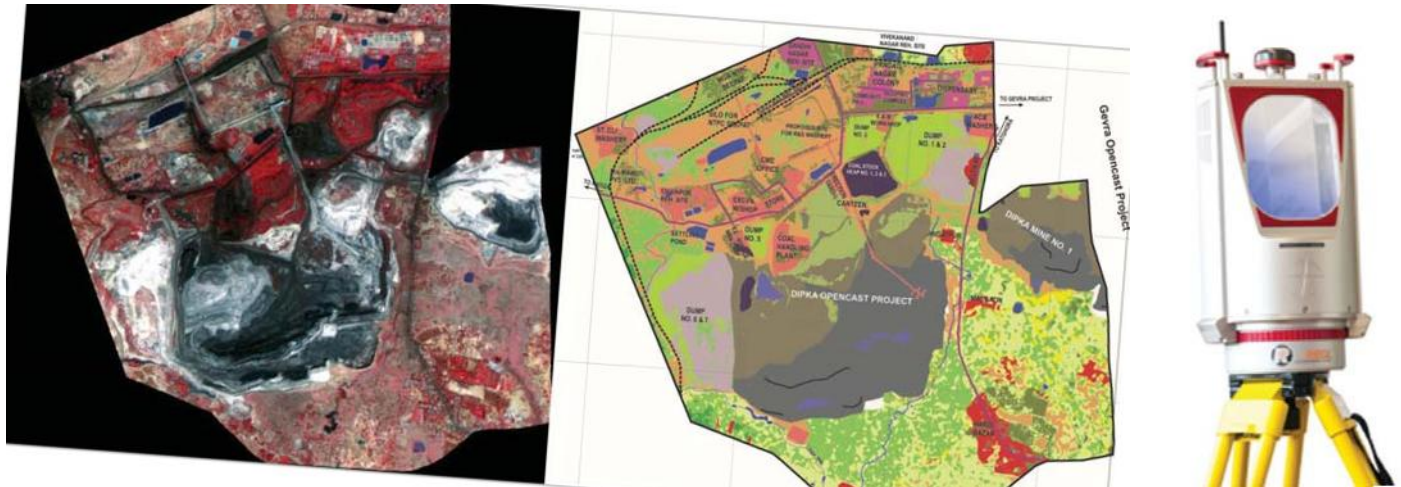
Mining laboratory

Physico-mechanical properties of rocks are determined which form design inputs for mine planning and other technical services being rendered by CMPDI. It also undertakes testing of roof supports and building materials. Rock Mass Rating (RMR) of roof strata is determined for design of support systems for underground workings.

Washery laboratory

Washability characteristics of coarse, small and fine coal and shattering & pulverizing characteristics of coal are determined for assistance in planning and design of coal beneficiation plants.

Specialized Services



Services offered

Geomatics

- Remote sensing applications
- Terrestrial Laser Scanning
- Topographic survey
- Monitoring of land use/land cover for environmental management
- Coal mine fire mapping using thermal satellite data
- Correlation survey for underground mines using Gyroscopic
- DGPS/GIS survey
- Cartography and digital image processing

Blasting

- Controlled blasting & ground vibrations study
- Performance evaluation of new explosives

Non Destructive Testing (NDT)

- NDT of Components of machinery, installations and other structural elements

Ventilation and Gas survey

- Planning and design of ventilation systems including monitoring/Gas assessment and testing for underground mines



CTm



ICT is set to revolutionise mining industry and mine operations in the coming years. CMPDI has geared itself fully to meet the challenges in this sector. It has centralised software infrastructure for Mine Planning and Design which is shared by all Regional Institutes using MPLS-VP based WAN with LANs at HQ and all Regional Institutes.

CMPDI is now a data hub for centralised applications developed by CMPDI for Coal India for HR applications. CMPDI also provides consultancy for design of networks, infrastructure and software applications in mining industry.

CMPDI is aware of the importance of information and security and is certified for ISO 27001. Equipped with latest tools, CMPDI is striving ahead for a paperless office concept, IP based surveillance systems and video conferencing.

CMPDI provides consultancy services for:

- Mine communication and mine safety systems
- Establishment of internet and intranet
- Real time fleet management system for large open cast mines using GIS & GPS
- Land information system using enterprise GIS

R & Dm



The major research areas covered under Coal sector are:

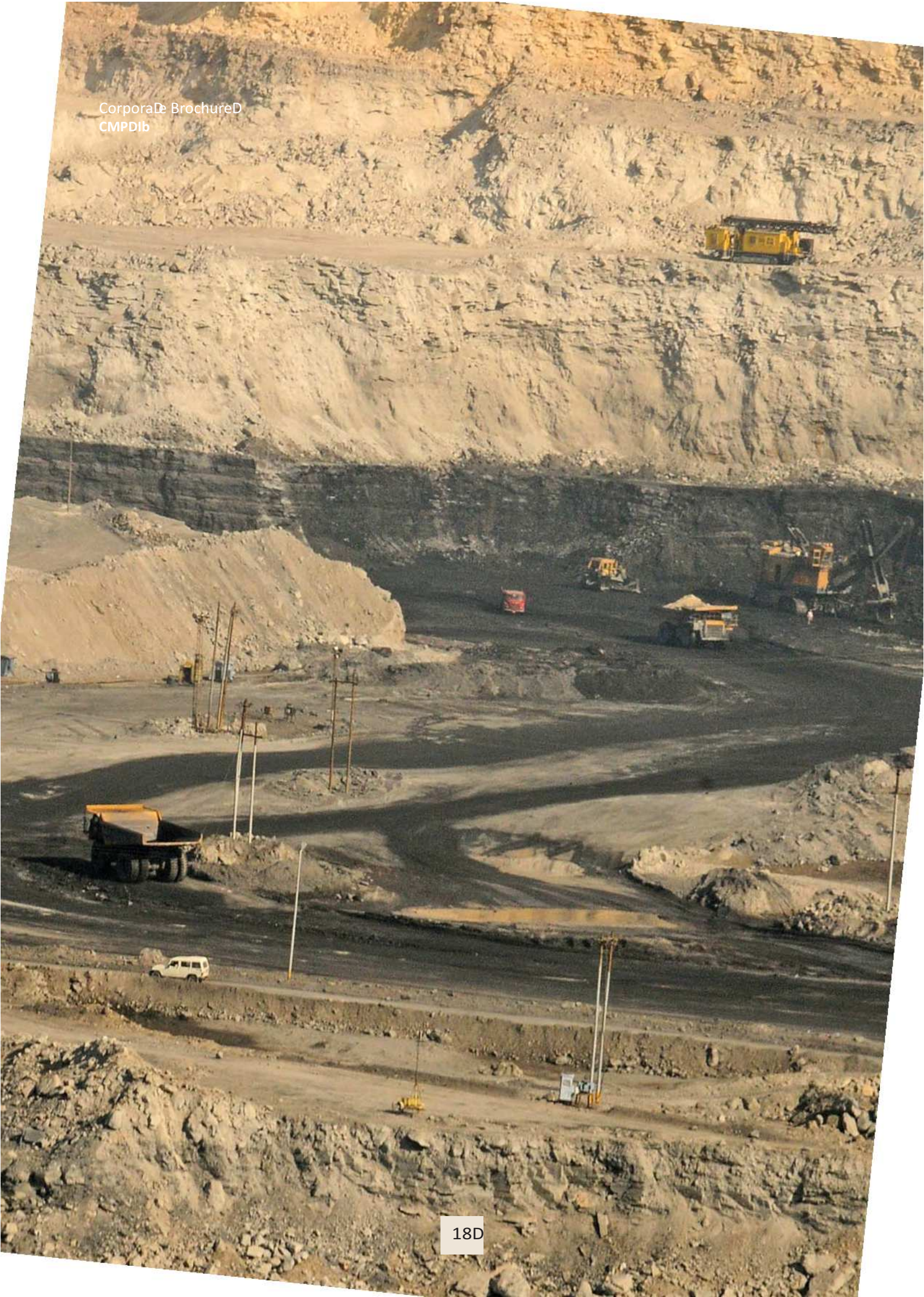
- Coal exploration
- Mining methods
- Mine safety
- Coal beneficiation and utilisation
- Mine reclamation and mine environment studies
- Satellite applications

CMPDI has state of the art facilities to undertake research & development projects apart from being the nodal agency for the S&T projects funded by GOI in coal and lignite sector and R&D projects funded by Coal India R&D Board.

Notable advances have been made through R&D efforts in application of new technology in coal mining.

New areas like coal bed methane and its utilisation and underground gasification and air quality monitoring using satellite data is being addressed through R&D projects.

CMPDI is making efforts for enhancing quantum of R&D work needed to address the complexity of operations of coal industry and also for wider involvement of research agencies in the S&T programme.



Our Clients

- Coal India Limited
- Bharat Coking Coal Limited
- Central Coalfields Limited
- Eastern Coalfields Limited
- Mahanadi Coalfields Limited
- Northern Coalfields Limited
- South Eastern Coalfields Limited
- Western Coalfields Limited
- Adani Explosives Ltd.
- Adani Power Ltd.
- Baitarni West Coal Company Ltd.
- Bharat Aluminium Co. Ltd.
- Bhadrachalam Mines Pvt. Ltd.
- Central Electricity Authority
- Central Pollution Control Board
- Chhattisgarh Mineral Development Corporation
- Chhattisgarh State Electricity Board
- Damodar Valley Corporation
- Directorate General of Hydrocarbons
- Electro Steel Casting Ltd.
- Essar Power Ltd.
- Goa Industrial Development Corporation
- Govt. of Goa
- Govt. of Jharkhand
- Govt. of Meghalaya
- Govt. of Nagaland
- Govt. of West Bengal
- Gujarat Mineral Development Corporation Ltd.
- Haldia Dock Complex
- Haryana Power General Corporation Ltd.
- Hindustan Copper Ltd.
- Indian Bureau of Mines
- Indian School of Mines
- Indragraha Coal Mining Pvt. Ltd.
- Jharkhand State Electricity Board
- Jharkhand State Mineral Development Corporation
- Karnataka Power Corporation Ltd.
- LANCO Infrastructure Ltd.
- Larsen & Tubro
- Madhya Pradesh Power Generating Company Ltd.
- Madhya Pradesh State Electricity Board
- Madhya Pradesh State Pollution Board
- Maganese Ore (India) Ltd.
- Mahaguj Coal Company Ltd.
- Ministry of Environment & Forests
- National Aluminum Company Ltd.
- National Mineral Development Corporation
- National Thermal Power Corporation Ltd.
- Neyveli Lignite Corporation Ltd.
- Odisha Coal and Power Ltd.
- Odisha Industrial Infrastructure Development Corporation
- Orissa Mining Corporation
- Power Finance Corporation Ltd.
- Punjab State Electricity Board
- Rajasthan State Mines & Mineral Ltd.
- Rashtriya Ispat Nigam Ltd.
- SAIL-ISPDC
- Sasan Power Ltd. (Reliance Coal Resource Ltd.)
- Singareni Collieries Company Ltd.
- Steel Authority of India Ltd.
- The Tata Steel Ltd.
- TCM Coal Company
- Uranium Corporation of India Ltd.
- V. K. Sha Martin Ltd.
- Varanasi Pradesh Rajya Vidyut Utpadan Nigam Limited
- West Bengal Mineral & Development Corporation Ltd.



Regional Institutes

Regional Institute-Ib

Central Mine Planning & Design Institute Limited

Regional Institute - IB

West End, G.T. Road, Asansol - 713 304 (WB), India

Tel: +91 341 2253504 Fax: +91 341 2250935 email: rdri1.cmpdi@coalindia.in

Regional Institute-IIb

Central Mine Planning & Design Institute Limited

Regional Institute - IID

Koyala Bhandan, Koyla Nagar, Dhanbad - 826 005 (Jharkhand), India

Tel: +91 326 2230789 Fax: +91 326 2230500 email: rdri2.cmpdi@coalindia.in

Regional Institute-IIIb

Central Mine Planning & Design Institute Limited

Regional Institute - IIID

CMPDI Campus

Gondwana Place, Kanke Road, Ranchi - 834 031 (Jharkhand), India

Tel: +91 651 2231506 Fax: +91 651 2231501 email: rdri3.cmpdi@coalindia.in

Regional Institute-IVb

Central Mine Planning & Design Institute Limited

Regional Institute - IVD

Kasurba Nagar, Jaripatna, Nagpur - 440 014 (Maharashtra), India

Tel: +91 712 2642134 Fax: +91 712 2643231 email: rdri4.cmpdi@coalindia.in

Regional Institute-Vb

Central Mine Planning & Design Institute Limited

Regional Institute - VD

SECL Complex, Seepadar Road, Bilaspur - 495 006 (Chhattisgarh), India

Tel: +91 7752 246482 Fax: +91 7752 246481 email: rdri5.cmpdi@coalindia.in

Regional Institute-VIb

Central Mine Planning & Design Institute Limited

Regional Institute - VID

P.O. Jayant Colliery Dist Singrauli, PIN: 486 890 (Madhya Pradesh), India

Tel: +91 7805 222172 Fax: +91 7805 222330 email: rdri6.cmpdi@coalindia.in

Regional Institute-VIIb

Central Mine Planning & Design Institute Limited

Regional Institute - VIID

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