

**MINERAL RESOURCES DEPARTMENT
GOVERNMENT OF CHHATTISGARH
INDIA**

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CHHATTISGARH – AN ATTRACTIVE MINES DESTINATION

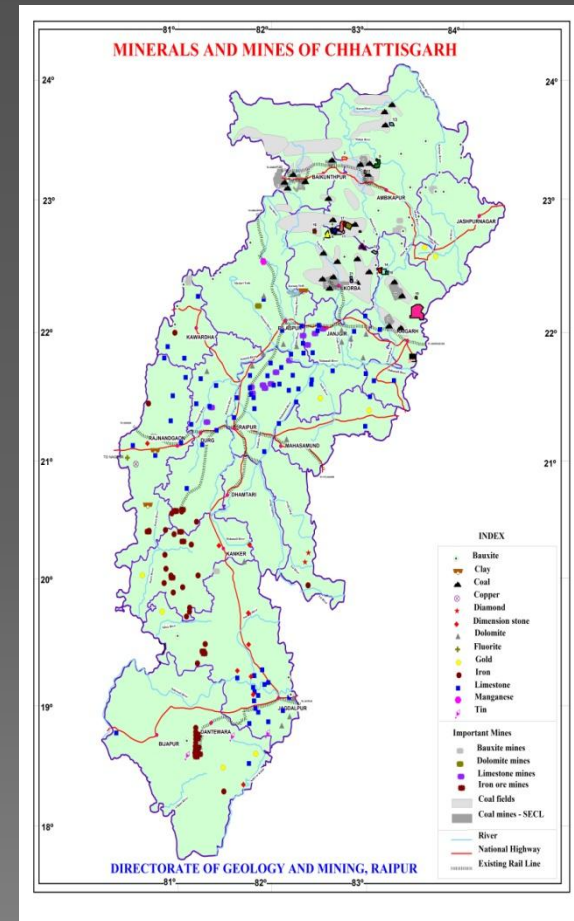
- Centrally located with high mineral and industrial potential
- Favorable/Geological Set up
- Potential Mineral Reserves
- Well connected by air, rail and road
- Low population density (~ 1.89 persons/km²) no dearth of land
- Sufficient power generation
- Large number of mineral-based industries
- User-friendly government policies



MINERALS OF CHHATTISGARH

Important Minerals:-

- Coal
- Iron ore
- Bauxite
- Limestone
- Dolomite
- Tin ore
- Diamond
- Corundum
- Gold
- Quartzite



IMPORTANT MINERAL RESOURCES

S No	Mineral	Resource in India		Resource in Chhattisgarh		% in India
1	Coal	298914	million tonne	52169	million tonne	17.45
2	Iron ore	14630	million tonne	2731	million tonne	18.67
3	Limestone (all grade)	175345	million tonne	9038	million tonne	5.15
4	Dolomite	7533	million tonne	847	million tonne	11.24
5	Bauxite	3290	million tonne	148	million tonne	4.50
6	Quartzite	1145	million tonne	26	million tonne	2.27
7	Diamond	4.58	million carats	1.30	million carats	2.8%
8	Tin ore	86.55	million tonne	32.62	million tonne	37.69
	Tin metal	101237	tonne	14449	tonne	14.27

Source: Indian Bureau of Mines, Mineral Year Book 2009 (Published in January 2011)

MINERALS OF CHHATTISGARH

- Occurrences of various important major minerals are known in Chhattisgarh along with a number of other minerals occurring in traces
- Many mineral deposits have been evaluated and are being mined
- State's mineral resources include:-

Bulk minerals like iron ore, coal, limestone, dolomite, bauxite, graphite, quartzite, etc.

High value minerals like cassiterite, diamond, corundum & other gemstones, precious (Au), base and rare metals/elements, etc.

- Chhattisgarh occupies 4% of total area of India
- Chhattisgarh contributes almost 13% of value of mineral produced in India, contributed minerals worth 2767 million US \$ in 2012-13
- Important minerals produced in Chhattisgarh during 2012-13 are

Mineral	Production	Production Value (Million US \$)	% in India	Position in India
Tin	47,776 Kg	0.42	100.00	1 st
Coal	117.82 MT	1180	21.14	1 st
Dolomite	1.87 MT	8	27.90	1 st
Bauxite	1.81 MT	17	11.84	5 th
Iron ore	27.94 MT	142	20.54	2 nd
Limestone	20.16 MT	6	7.21	7 th

INVESTMENT OPPORTUNITIES

Chhattisgarh has the privilege to be the focus State

Because it is/has:

- **Almost centrally located with high mineral and industrial potential**
- **Well connected by air, rail and road transport**
- **Low-density population (189 persons/km²). Hence no dearth of land**
- **Sufficient power generation**
- **Largest number of mineral-based industries**
- **A large number of minerals having huge deposits**
- **User-friendly government policies**

THE STATE OFFERS INVESTMENT OPPORTUNITY THROUGH:

- **Prospecting & Exploration of the minerals**
- **Mining of evaluated deposits**
- **Processing and value addition**

These rights can be acquired under

- **Reconnaissance Permit (RP) - Large area (<5000 km²) for survey and investigations**
- **Prospecting License (PL) - for prospecting the minerals**
- **Mining Lease (ML) - for the exploitation of the mineral**

MINERAL POLICY: SALIENT FEATURES

The specific objectives of the Policy are to ensure :

1. Sustainable development and use of the State's mineral wealth
2. Encouragement of value addition
3. Creation of a conducive business environment to attract private investment (domestic and international) in the sector
4. Simplification of procedures and complete transparency in decision-making

To meet these objectives, the State has identified specific initiatives, which have been classified as:

1. Development of Infrastructure & Human Resources
2. Promoting Value Addition and Mining Development
3. Institutional Development and Regulatory Reforms

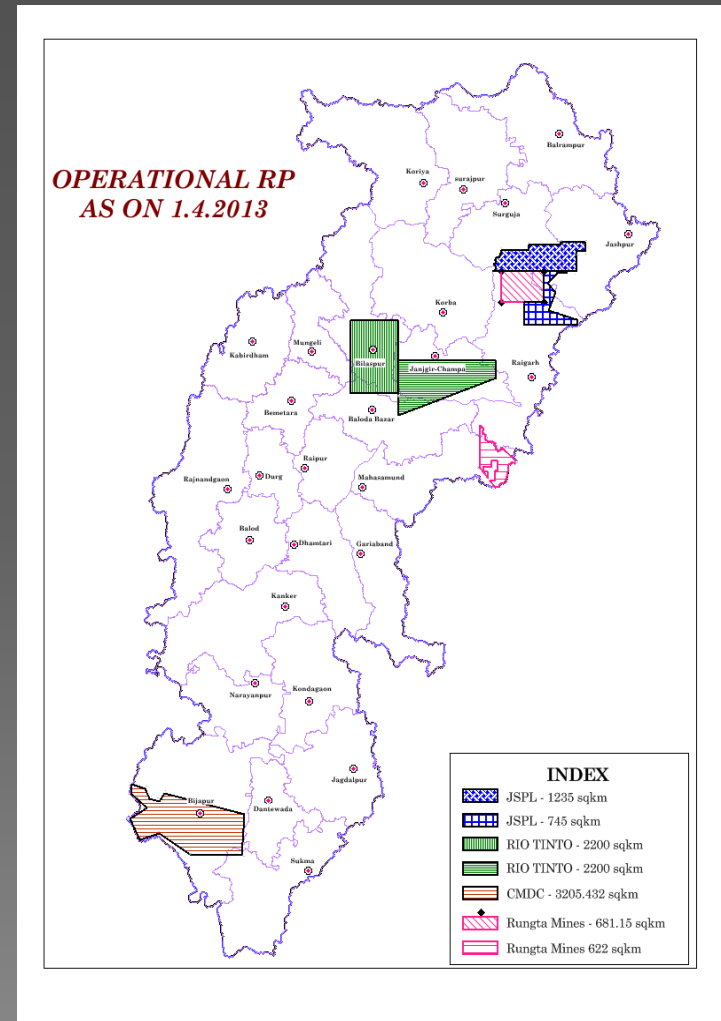
RECONNAISSANCE PERMIT IN CHHATTISGARH (AS ON 1.10.2013)

- More than 42,000 sq km area has been covered by sanctioned RP for diamond, gold and other precious stones / minerals
- 41 Prospecting Licence applications for Diamond, Gold & other base metals have been made

OPERATIONAL RECONNAISSANCE PERMITS

(As on 1.10.2013)

- At presents 39 RPs sanctioned, covering approximately 54000 km²
- 7 Operational RPs covering approximately 11000 km²



SCENARIO IN MINERAL BASED INDUSTRIES

Metal & Cement Sector-

- Two integrated iron and steel plants are operating (SAIL & JSPL) and another three are in pipeline (M/s Tata, Essar and NMDC)
- More than 80 sponge iron producing units exist.
- One aluminum producing plant of Balco, with 0.34 million tonnes capacity, going to enhance its capacity into approximately one million tonnes (in two phases of 0.34 million tonnes each)
- 7 major cement units are producing around 14 Million tonne cement annually. More units are under pipeline.

SCENARIO IN MINERAL BASED INDUSTRIES

Power Sector-

- 7 major and 50 captive coal based power plants with a capacity of more than 8000 MW are working and many more are expected to start production.
- Several Coal blocks have been allotted to various companies, which will start exploration & mining very soon.
- Apart from these, number of refractory, fertilizer, chemical, calcination, granite/marble cutting polishing units exist.

EXPLORATION POTENTIALS

Mineral Exploration:

State encourages exploration for minerals involving most modern and the state-of-art technology

- Diamond
- Gemstones
- Base metals
- Precious metals
- Residual in situ deposits
- Li, Cs, Nb, Ta, Ga, etc.
- PGE

DIAMOND

Why we call Chhattisgarh as a favourable destination for diamonds:-

- Discovery of 6 Kimberlite pipes in Behradih Payalikhanda area of central Chhattisgarh, out of which four pipes proved to be diamondiferous..
- Finding of placer diamonds in Ib-Maini rivers of North Chhattisgarh.
- Geological and structural set-up favours for emplacement of kimberlitic clan rocks.
- Some of the Reconnaissance Permit holders are getting positive results in diamond exploration.

GOLD

- Metallogenically the Precambrian of Chhattisgarh offer gold exploration potential for variety of Gold deposits.
- Gold bearing quartz veins with 3 gm/ tonne gold have been proved in central Chhattisgarh, Sonakhan area.
- A 14 km long zone of gold mineralization has been located in Kotri rift zone of west Chhattisgarh, pronounced by number of old workings.
- Over 1000 sq.km. area is known to be auriferous where gold occurs mostly in placers. Concentration of gold is 0.1 to 0.3 gm/m³.
- Banded iron formation of South Chhattisgarh is reported to be gold bearing.

BASE METAL

- Several anomaly zones in South Chhattisgarh have been identified during UNDP for base metal mineralization.
- Mineralization confirmed at many places in South Chhattisgarh for Cu, Pb (Ettepal, Gilgichha, Binjam, Modenar etc.)
- Indication of lead mineralization in brecciated quartz veins are reported in Surguja, Korla districts of North Chhattisgarh.
- Base metal/ polymetallic mineralization confirmed in 700 m long silicified fault zone in Rajnandgaon & Durg districts.
- Geological & Structural setup suggest favourable conditions for base metal mineralization.
- Detailed investigation can result in substantial reserves.

TIN ORE (CASSITERITE)

- The State is the sole producer of tin ore in India.
- 32.62 million tonnes of tin ore is estimated in south Chhattisgarh.
- Tin bearing pegmatites are widespread in Bastar region of south Chhattisgarh.
- Concentration of cassiterite in alluvial deposits is worked, detailed work for in situ ore is required.

CORUNDUM

- Occurs in Bhopalpatnam and Sukma area of South Chhattisgarh.
- Gem & Semi Precious varieties including blue sapphire are also reported along with Industrial variety .
- Extension of the known deposits are expected.
- Under exploitation through Chhattisgarh Mineral Development Corporation.

LEPIDOLITE

- Directorate of Geology and Mining, Chhattisgarh in collaboration with UNDP, identified Lithium bearing pegmatites in Chitalnar, Mundwal, Govindpal areas of South Chhattisgarh.
- Probable reserves of Lepidolite estimated are 38625 tonne with upto 1.92% Lithium Oxide.
- Area warrants detailed investigation.

CATEGORY AND STATUS OF MINERAL DEPOSITS

- **Extensive:** Coal, Iron ore, Limestone, Dolomite, & Quartzite;
- **Moderate:** Bauxite (with Vanadium), Tin and associated Rare Metals (Ta, Nb, Li, Rb, Cs, etc.), Dimension stones (multicolored and textured varieties of Granite, Diorite, Limestone, Flagstone/Sandstone, etc)
- **High value:** Diamond, PGE, Gold, Copper, Lead, Zinc, Alexandrite,
- **Workable:** Corundum, Garnet, Steatite, Beryl, Clays, Fluorite, Andalucite, Kyanite, Sillimanite, Talc, Soapstone, etc
- **Potentiality for search of:** Gold, Diamond, Cu, Pb, Zn, Nickel, Chromium, Cobalt, Platinum-Palladium group of elements, Alexandrite and other gemstones

SALIENT FEATURES OF CHHATTISGARH TO NATIONAL CONTRIBUTION

- Ranks second in mineral production, with ~12.95% share of value
- Mineral produced worth Rs. 16600 crore (excluding atomic minerals and petroleum),
- Contribute entire tin ore production,
- Ranking 1st in Coal (~21.14%),
- 1st in Dolomite (~27.90%),
- 2nd in Iron ore (~20.54%),
- 5th in Bauxite (11.84%)
- 3rd in Quartzite (~11.47%),
- 7th in Limestone (~7.21%)
- Mineral revenue Rs. 3126.02 crore (April 2012 to March 2013)

CMDC

CHHATTISGARH MINERAL DEVELOPMENT

CORPORATION LTD

(AN U/T OF THE GOVERNMENT OF CHHATTISGARH)

***CMDC IS REGISTERED
UNDER THE COMPANY
LAW OF INDIA.....***

ABOUT CMDC

- ✓ **AT PRESENT CMDC IS ENGAGED IN EXPLORATION, MINING AND TRADING OF COAL, IRON ORE, BAUXITE, CORRUNDUM, TIN AND COLUMBITE.**
- ✓ **CMDC IS HAVING SUFFICIENT NUMBER OF TECHNICAL AND OTHER ADMINISTRATIVE PERSONNEL.**

TIN PROJECTS

- ✓ **CMDC IS COLLECTING TIN ORES FROM COOPERATIVE SOCIETIES OF TRIBALS IN DISTRICT-DANTEWADA, CHHATTISGARH.**
- ✓ **CMDC HAS FORMED A J.V.C. FOR MINING AND MARKETING OF TIN ORE IN THE NAME OF PRECIOUS MINERALS AND SMELTING LTD., JAGDALPUR, CHHATTISGARH.**

BAUXITE PROJECTS

- ✓ **CMDC IS PRODUCING AROUND 0.12 MT OF BAUXITE PER YEAR FROM ITS MAINPAT BAUXITE MINES, DISTRICT-SURGUJA AND SUPPLY IT TO BALCO. (A VEDANTA GROUP COMPANY)**
- ✓ **CMDC HAS ALSO ENTERED INTO LONG TIME CONTRACT/SUPPLY AGREEMENT WITH HINDALCO INDUSTRIES LTD. FOR ITS BAUXITE DEPOSIT IN DISTRICT-SURGUJA.**
- ✓ **CMDC HAS FORMED A JVC FOR THE MINING AND MARKETING OF ITS BAUXITE DEPOSIT IN DISTRICT-BASTAR IN THE NAME OF KESHKAL G.N. INDIA BAUXITE MINES AND MINERALS LTD.**

CORUNDUM PROJECTS

- ✓ **CMDC HAS FORMED A JOINT VENTURE COMPANY FOR THE EXPLORATION, MINING AND MARKETING OF CORUNDUM IN DISTRICT-SOUTH BASTAR (DHANTEWADA), CHHATTISGARH IN THE NAME OF CHHATTISGARH CORUNDUM MINES LTD.**

- ✓ **APART FROM THE ABOVE, CMDC ALSO HAVING 2 MINING LEASES FOR WHICH DECISION IS YET TO BE TAKEN BY THE MANAGEMENT OF CMDC FOR THE DEVELOPMENT OF THIS DEPOSIT.**

INVESTMENT OPPORTUNITIES WITH CMDC

✓ **CMDC IS SEARCHING FOR PROSPECTIVE PARTNERS FOR EXPLORATION AND MINING OF ITS FOLLOWING MINERAL RESOURCES**

1. **COAL** - **GARE-PELMA SECTOR-1 BLOCK**
2. **IRON ORE** - **KABIRDHAM**
- **ARIDONGRI**
3. **BAUXITE** - **MAINPAT, SURGUJA, PENDRAPAT,
JASHPUR, KABIRDHAM**
4. **CORRUNDUM** - **SOUTH BASTAR, DANTEWADA**
5. **TIN** - **SOUTH BASTAR, DANTEWADA**

THANK YOU