RESOURCE RICH STATE IN CENTRAL INDIA

- Area - 135 thousand sq.km.
- Population – 25.60 million
- Chhattisgarh occupies 4% of total area of India
- Chhattisgarh contributes almost 13% of value of mineral produced in India, contributed minerals worth 2677 million US $ in 2012-13
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
Important Minerals:-

- Coal
- Iron ore
- Bauxite
- Limestone
- Dolomite
- Tin ore
- Diamond
- Corundum
- Gold
- Quartzite
## IMPORTANT MINERAL RESOURCES

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

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

<table>
<thead>
<tr>
<th>Mineral</th>
<th>Production</th>
<th>Production Value (Million US $)</th>
<th>% in India</th>
<th>Position in India</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tin</td>
<td>47,776 Kg</td>
<td>0.42</td>
<td>100.00</td>
<td>1st</td>
</tr>
<tr>
<td>Coal</td>
<td>117.82 MT</td>
<td>1180</td>
<td>21.14</td>
<td>1st</td>
</tr>
<tr>
<td>Dolomite</td>
<td>1.87 MT</td>
<td>8</td>
<td>27.90</td>
<td>1st</td>
</tr>
<tr>
<td>Bauxite</td>
<td>1.81 MT</td>
<td>17</td>
<td>11.84</td>
<td>5th</td>
</tr>
<tr>
<td>Iron ore</td>
<td>27.94 MT</td>
<td>142</td>
<td>20.54</td>
<td>2nd</td>
</tr>
<tr>
<td>Limestone</td>
<td>20.16 MT</td>
<td>6</td>
<td>7.21</td>
<td>7th</td>
</tr>
</tbody>
</table>
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
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
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
At present 39 RPs sanctioned, covering approximately 54000 km$^2$

7 Operational RPs covering approximately 11000 km$^2$

OPERATIONAL RECONNAISSANCE PERMITS

(As on 1.10.2013)
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.
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
Why we call Chhattisgarh as a favourable destination for diamonds:-

- Discovery of 6 Kimberlite pipes in Behradih Payalikhand 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.
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.
Several anomaly zones in South Chhattisgarh have been identified during UNDP for base metal mineralization.

Mineralization confirmed at many places is South Chhattisgarh for Cu, Pb (Ettepal, Gilgichha, Binjam, Modenar etc.)

Indication of lead mineralization in brecciated quartz veins are reported in Surguja, Koria 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.
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-Danteewada, 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 a 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