

Mineral Resources of Chhattisgarh State

Puran, Yuvraj and G. P. Khare

Civil Engineering
Government Engineering College Jagdalpur, India
email:sinhapuran1998@gmail.com, yuvisahu931@gmail.com, gpkharegce@gmail.com.

(Received on: October 1, 2019)

ABSTRACT

Chhattisgarh state has the workable economic deposits of almost all minor and major minerals located at different parts of the state. Different kind raw minerals are available to sustain the conventional Industries. Southern Bastar Province and the northern Satpura Province is divided by Central Indian Shear Zone (CIS). The Central Indian Shear Zone subdivides the state into two distinct geological provinces and trending E-W and passing through the central part Kondagaon constitutes by Bastar Province cratonic nuclei comprising Archaean Gneissic Complex with tectonic silver. The Neo Archaean to Palaeo Proterozoic green stone belt is the center part of the gneissic complex Bailadila Group. It spread around in the western part of the state bordering to ward Maharastra between Chilpi Ghat in the north to the fringes and Abujhmar in the south.

Keywords: minor and major minerals, raw minerals.

1. GENERAL

Chhattisgarh hosts a wide variety of minerals. A few of them form large economic deposits while few of them are reported only as occurrences. Large deposits of Coal, Iron Ore, Limestone, Bauxite, Dolomite and Tin ore are located in different parts of the state. The medium to small deposits of Gold base-metals, Quartzite, Soapstone, Steatite, Fluorite, Corundum, Graphite, Lepidolite, Amblygonite are also prospecting. Occurrences of Garnet, Amethyst, Beryl, Kainite and rare precious Mineral Alexandrite are reported from different parts of the State. Chhattisgarh has considerable presence of major multinationals and national players in the field of Mineral Exploration. More than 28 Minerals are found in the State. The Rock Mass Classification and Engineering Properties of rocks available in a particular area

could also be undertaken to suggest the stability aspects of underground constructions and mining activities of that areas.

2. MINERAL RESOURCES

Chhattisgarh has the perfect geological set up to host a number of economic mineral deposits. The area has observed for multiple major thermo tectonic events, covering principal Metalogenic and Mineralogenic episodes. With 28 known minerals, the state is the richest in mineral wealth. The reserves of important mineral are given in above table. The state is intimately associated with important minerals and these are Diamond, Coal, Iron ore, Limestone, Dolomite, Bauxites and Tin ore. Tin ore is found in Chhattisgarh only in India. Some other important minerals as Atomic minerals and precious metal gold are also available in the state. The state has also sources of Corundum, Clay, Quartzite, Fluorite, Beryl, Andalusite, Kainite, Sillimanite, Talc, Soapstone and Garnet.

Table 2: Mineral Resources

S. No.	Mineral	Reserves in Chhattisgarh in (MT)	Overall % Reserve of India
1.	Iron ore	2336	18.96 %
2.	Coal	39545	16.10 %
3.	Bauxite	198	6.44 %
4.	Lime stone	8225	4.73 %
5.	Cassiterite	31.84	99.93 %
6.	Dolomite	935	12.75 %
7.	Gold	3	2.58 %
8.	Corundum	50	0.15 %
9.	Quartzite	26.10	2.32

2.1 IRON ORE

The State has world-class **Iron Ore** deposit (up to 68% Fe). In the state **there are over 2300 million tones** of superior grade Hematite iron ore are available, which constitute one fifth of total Indian iron ore. The State has produced 23 million ton **Iron Ore** and ranked 3rd in the country and accounting 16% of the national production. The 76 Sponge Iron units are operational in the different parts of State. TATA Steel Plant and ESSAR Steel Plant have signed MOU with State Govt. to set-up steel plants in the State.

2.2 BAUXITE

The state has 7% of the national reserves of bauxite, approximately 198 million tones. In the country the state contributing is 9.5% to the national production. State reserves support

aluminum extraction units of BALCO in Chhattisgarh and Hindalco in U. P. Aluminum parkis proposed in the state which will house more than 100 units to manufacture various aluminum produce.

2.3 LIMESTONE

The state contributes 5% to the national reserves with over 8225 million tones limestone of the grades. The Chhattisgarh state has rank 5th and limestone production sharing 10 % of the national tally. Further, 7 major and 4 mini Cement units are operational. And Cement grade limestone deposits of various magnitudes have been identified. Kanger limestone belt extends over a length of 30 km from Dhurvara to Kotomsari. Pekela limestone and Potanar limestone belt stretch located in Bastar district.. Extensive deposits of BF grade limestone are present in the Bilaspur district. The estimated recoverable reserves of lime stone in Raipur district 2373 million tones.

2.4 DOLOMITE

The state has 13% of the total Indian dolomite deposits with 935 million tones reserve. The state ranks 2nd in dolomite production sharing over 26% of national production. Dolomite is mostly available of flux and refractory grade.

2.5 COAL

The state has 16 %. 39545 million tones coal has been estimated in 12 coalfields of the state. The state ranks 2nd in coal production by contributing over 18% to the total national output. Most of the coal deposits are of power grade. NTPC and CSEB in Korba is the major producer of thermal power in the State and a new plant NTPC started at Seepat, Bilaspur. New capacities of 10000 MW are expected to materialize by 2011. 19 coal blocks have been allotted to companies for captive use.

Table 2.5: Coal Reserve

S. No.	Coal Field	Reserve in (M T)	District
1.	Sohagpur coalfields	104	Sarguja
2.	Sonhat coalfields	478	Sarguja
3.	Jhilimili coalfields	267	Koria
4.	Chirimiri coalfields	362	Koria
5.	bishrampur coalfields	1450	Sarguja
6.	Lakhanpur coalfields	451	Sarguja
7.	Panch Bahini coalfields	11	Sarguja
8.	Hasdeo Arand coalfields	4964	Sarguja-Koria
9.	Sendurgarh coalfields	279	Koria-Korba
10.	Korba coalfields	10002	Korba
11.	Mand Raigarh coalfields	17987	Raigarh
12.	Tatapani Ramkota coalfields	1507	Sarguja-koria

2.6 TIN ORE

Chhattisgarh is the sole producer of tin ore in India. 99.90 % of the Indian tin ore occurs in the state, which are 31.84 million tones. Tin ore are available in southern part of the state. It is found at Tongpal, Katekalyan and Padapur-Bacheli area of Dantewada district. A smelter unit of tin ore is operational in Jagdalpur.

2.7 DIAMOND

The diamondiferous kimberlite has attracted global attention. The Important companies as De Beers, ACC Rio Tinto, BHP Billiton and Geo Mysore Services engaged in reconnaissance operations at the state.

2.9 DIMENSION STONES

It is widely spread all over the state. The attractive colored and designed Limestone and dolomite of are extensively found in the state.

2.10 GOLD

The gold quality rocks are widely available in Raipur and Mahasamund district. Placer gold panning is widely recorded from Jashpur, Kanker, Mahasamund Bastar district. The other gold reserves about three tones are identified in the state. The famous mining companies ACC Rio Tinto and Geo Mysore Services is doing reconnaissance in the state. Present study is very much helpful for us. The minerals resources available in the Chhattisgarh is abandon in quantity and our whole county and abroad is using these resources for different purposes. So many Iron and Steel Industries are functioning in the State and Country and the requirement of all industries are fulfilled by the State itself. There is a further scope of study in minerals resources of Chhattisgarh State.

REFERENCES

1. November "Data publication of Directorate of Geology and Mining Chhattisgarh in their official website". (2000).
2. August "Geological Survey of India" *Special Publication No. 58*, pp 427-431 (2001).
3. *International Journal of Mining & Mineral Processing* vol.-1, No.-1, Jan. -June (2010).
4. *International Journal Geo technical and environment*. Vol.-2, No.-1, January-June (2010).
5. *ASCE Journal of materials in civil Engineering*, Vol.-21 No.- 4, August (2009).
6. Data publication of Directorate of Geology and Mining Chhattisgarh in their official website.
7. Deere D.U., Miller R.P. Engineering Classification and Index Properties for Intact Rock. Technical Report No. AFNL-TR-65-116. Air Force Weapons Laboratory, New Mexico (1966).
8. Tiwari R. P. & Rao K.S. Physical and Engineering Response of Artificially Manufactured Model Material and Its Use for Rock Mass Testing. Nat. Seminar on Geo mechanics and Ground Control, 24-25 September, 2003, *CMRI*, Dhanbad, India, pp. 219-235 (2003).
9. John A. Franklin, Maurice B. Dusseault, Rock Engineering, International editions of a McGraw-Hill.