Indian Minerals Yearbook 2020

(Part- I)

59th Edition

STATE REVIEWS
(Jharkhand)

(ADVANCE RELEASE)

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MINISTRY OF MINES
INDIAN BUREAU OF MINES

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JHARKHAND

Mineral Resources

Jharkhand is one of the major mineral producing States. It is the sole producer of flint stone in the country and is one of the leading producers of coal, gold, graphite, bauxite, iron ore & limestone. Uranium ore is mined and processed by Uranium Corporation of India Ltd (UCIL) for supply as fuel to the country's nuclear power reactors through six underground mines, one opencast mine and two processing plants. Jharkhand has the sole resources of emerald mineral. It accounts for about 31% rock phosphate, 23% iron ore (haematite), 30% apatite, 14% andalusite, 20% cobalt ore, 20% copper ore, 9% each granite (dimension stone) & graphite and 5% silver ore resources of the country.

Important minerals that occur in the State are **bauxite** in Dumka, Gumla, Latehar, Lohardaga & Palamu districts; **china clay** in Dumka, Hazaribagh, Lohardaga, East & West Singhbhum, Sahebganj & Ranchi districts; **coal** in Bokaro, Deoghar, Dhanbad, Giridih, Godda, Hazaribagh, Palamu, Pakur & Ranchi districts; **copper** in Hazaribagh & East Singhbhum districts; **dolomite** in Garhwa & Palamu districts; **felspar** in Deoghar, Dhanbad, Dumka, Giridih, Hazaribagh, Jamtara, Koderma, Latehar, Palamu & Ranchi districts; **fireclay** in Dhanbad, Dumka, Giridih, Godda, Hazaribagh, Latehar, Palamu, Ranchi & West Singhbhum districts; **gold** in East Singhbhum district; **graphite** in Palamu district; **iron ore** (haematite) in West Singhbhum district; **iron ore** (magnetite) in Gumla, Hazaribagh, Latehar, Palamu & East Singhbhum districts; **kyanite** in Saraikela-Kharsawan & West Singhbhum districts; **limestone** in Bokaro, Dhanbad, Garhwa, Giridih, Hazaribagh, Palamu, Ranchi, East & West Singhbhum districts; **manganese ore** in East & West Singhbhum districts; **mica** in Giridih and Koderma districts; **ochre** in West Singhbhum district; **dunite/pyroxenite** in East Singhbhum district; **quartz/silica sand** in Deoghar, Dhanbad, Dumka, Giridih, Godda, Hazaribagh, Jamtara, Koderma, Latehar, Palamu, Ranchi, Sahebganj, Saraikela-Kharsawan & West Singhbhum districts; and **quartzite** in East & West Singhbhum districts.

Other minerals that occur in the State are **andalusite** and **rock phosphate** in Palamu district; **apatite, chromite, cobalt, nickel, gold** & **silver** in East Singhbhum district; **asbestos** in East & West Singhbhum districts; **barytes** in Palamu & East Singhbhum districts; **bentonite** in Pakur & Sahebganj districts; **garnet** in Hazaribagh district; **granite** in Deogarh, Dhanbad, Dumka, Giridih, Godda, Gumla, Hazaribagh, Koderma, Lohardaga, Palamu, Ranchi & East Singhbhum districts; **sillimanite** in Hazaribagh district; **talc/steatite/ soapstone** in Giridih, Koderma, Palamu, East & West Singhbhum districts; **pyrophyllite** in Saraikela-Kharaswan district; **titanium minerals** in Ranchi and East Singhbhum districts; and **vermiculite** in Giridih & Hazaribagh districts (Table - 1). The reserve/resources of coal and the various coalfields located in Jharkhand are furnished in Table - 2.

Exploration & Development

The details of exploration activities conducted by GSI for iron ore, gold, bauxite and nickel and other agencies (MECL) for bauxite, gold, etc. during the year 2019-20 are furnished in Table - 3.

Production

Coal was the principal mineral item reporting production in the State. The other important minerals produced are Bauxite, Copper Ore and Concentrate, Iron Ore, Manganese Ore, Limestone, etc. The value of minor minerals production is estimated at Rs 40 crore for the year 2019-20. There were 48 reporting mines in 2019-20 in case of MCDR of minerals. Details are furnished in Table – 4.

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, the principal large and medium-scale mineral-based industries in the organised sector in the State are furnished in Table - 5.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2015: Jharkhand

Mineral	Unit	Reserves				Remaining Resources								Total resources (A+B)
		Proved STD 111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
			STD121	STD122			STD221	STD222						
Andalusite	'000 tonnes	-	-	-	-	-	-	-	-	-	4000	1	4001	4001
Apatite	tonne	-	-	-	-	-	-	-	2110000	1620000	3540000	-	7270000	7270000
Asbestos	tonne	-	-	-	-	-	3871	18309	2885	5769	124059	-	154893	154893
Barytes#	tonne	-	-	-	-	-	-	-	-	-	35900	-	35900	35900
Bauxite	'000 tonnes	54471	219	8049	62740	9734	6154	15117	17883	17397	54106	55930	176321	239061
Bentonite##	tonne	-	-	609406	609406	-	3067	-	-	-	367527	-	370594	980000
China clay#	'000 tonnes	427	-	6412	6838	9338	2093	4738	3962	7363	149892	18019	195405	202244
Chromite	'000 tonnes	-	-	-	-	-	-	-	15	98	623	-	736	736
Cobalt	million tonnes	-	-	-	-	-	-	-	-	2	-	7	9	9
Copper					-								-	-
Ore	'000 tonnes	5374	-	1940	7314	13195	24511	3990	101168	103484	41726	-	288074	295389
Metal	'000 tonnes	61.33	-	20.54	81.87	142.08	255.74	45.92	1183.99	1058.42	507.38	-	3193.53	3275.40
Dolomite#	'000 tonnes	4510	-	6720	11230	10620	350	860	-	-	1857	-	13686	24916
Dunite#	' 000 tonnes	123	-	262	385	264	-	448	607	780	6121	8637	16857	17242
Emerald	kg	-	-	-	-	-	-	0	-	-	-	55869	55869	55869
Feldspar#	tonne	68789	15402	191913	276104	-	40766	348792	32510	120388	836061	-	1378517	1654621
Fire clay#	'000 tonnes	-	-	3	3	-	1125	309	139	122	64755	-	66450	66454
Garnet	tonne	-	-	-	-	-	-	88303	-	-	21768	-	110071	110071
Gold					-								-	-
Ore (Primary)	tonne	9349	-	-	9349	-	-	-	-	5146952	4203337	767000	10117289	10126638
Metal (Primary)	tonne	0.07	-	-	0.07	-	-	-	-	3.61	10.26	0.62	14.49	14.56
Granite## (Dim. Stone)	'000 cu. m	-	-	-	-	-	-	-	-	651300	8197110	26930	8875340	8875340
Graphite	tonne	1518581	1204423	1450550	4173555	39262	445703	1959747	5520	1856563	6639828	2440208	13386831	17560386
Iron ore (Haematite)	'000 tonnes	365111	29238	45022	439372	1081242	458866	457724	207324	597413	673009	1371468	4847045	5286417
Iron ore (Magnetite)	'000 tonnes	-	-	-	-	-	518	1986	411	3948	3722	82	10667	10667
Kyanite	tonne	426240	-	-	426240	824472	524467	881313	-	1754900	3182363	-	7167515	7593755
Laterite#	'000 tonnes	-	-	-	-	-	-	-	-	-	570	-	570	570
Limestone	'000 tonnes	88172	-	29116	117288	95008	13529	29265	89572	13220	354319	11803	606715	724003
Manganese ore	'000 tonnes	1840	-	328	2168	1710	795	1476	-	178	4177	1126	9461	11629
Mica#	kg	-	-	-	-	-	-	-	-	-	1494430	170700	1665130	1665130
Nickel ore	million tonnes	-	-	-	-	-	-	-	-	2	7	-	9	9
Ochre#	tonne	-	-	-	-	62	-	4	-	147	-	-	214	214

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Table - 1 (concld)

Mineral	Unit	Reserves				Remaining Resources								Total resources (A+B)
		Proved STD 111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
			STD121	STD122			STD221	STD222						
Pyrophyllite#	tonne	858	-	328	1185	-	-	-	-	-	-	-	-	1185
Quartz-Silica Sand#	'000 tonnes	-	-	1070	1070	534	985	4533	137	766	143053	112	150122	151192
Quartzite#	'000 tonnes	181	-	-	181	763	49	390	197	275	38854	-	40527	40708
Rock Phosphate	tonne	-	-	-	-	-	-	-	-	-	107370000	-	107370000	107370000
Silver														
Ore	tonne	-	-	-	-	-	-	-	-	-	23840000	-	23840000	23840000
Metal	tonne	-	-	-	-	-	-	-	-	-	5.22	-	5.22	5.22
Sillimanite	tonne	-	-	-	-	-	-	-	-	-	83000	-	83000	83000
Talc-Steatite-Soapstone#	'000 tonnes	336	-	83	419	-	-	54	2	4	243	16	319	739
Vermiculite	tonne	-	-	-	-	-	-	-	-	-	30048	-	30048	30048

Figures rounded off.

***Note**: The proved and indicated balance recoverable reserves of Coal-bed Methane (CBM) in the State as on 01.04.2020 (P) were 8.41 billion cu. m.*

*** Resources of ilmenite, rutile, leucoxene and zircon, as per Department of Atomic Energy, are provided in the respective Mineral Reviews.*

 # Declared as Minor Mineral vide Gazette Notification dated 10.02.2015.

Minor Minerals before Gazette Notification dated 10.02.2015.

Table – 2 : Reserves/Resources of Coal as on 1.4.2020: Jharkhand

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	**49468.59**	**30283.80**	**5849.71**	**85602.10**
Raniganj	1538.19	466.56	31.55	2036.30
Jharia	16282.19	3248.44	-	19530.63
East Bokaro	3497.43	3922.80	863.32	8283.55
West Bokaro	3922.75	1278.59	17.05	5218.39
Ramgarh	936.65	911.77	58.05	1906.47
North Karanpura	10699.76	6173.27	1864.96	18737.99
South Karanpura	5176.08	1312.28	1143.28	7631.64
Aurangabad	352.05	2141.65	503.41	2997.11
Hutar	190.79	26.55	32.48	249.82
Daltonganj	83.86	60.10	-	143.96
Deogarh	326.24	73.60	-	399.84
Rajmahal	6462.60	10668.19	1335.61	18466.40

Source: *Coal Directory of India, 2019-20.*

Table –3 : Details of Exploration Activities in Jharkhand, 2019-20

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq. km)	No. of boreholes	Meterage		
GSI							
Bauxite & associated minerals							
Latehar	Dumardih and Tukudih	1:4000	10	-	-	61	Preliminary exploration (G3) for bauxite and associated minerals (Ti, V, Ga etc.) was carried out in this area. An area of 10 sq. km was covered by Detailed Mapping on 1:4000 scale. Several laterite outcrops of massive to pisolitic nature were recorded in the study area. Borehole points were also planned on grid of 400 m spacing and have been fixed during the detailed mapping. The laterite exposures were mostly covered by yellow to reddish lateritic soil. It was observed as hard, compact, dark brown and massive to pisolitic in nature. Generally, it was found marked by

(contd)

Table –3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							closely packed pisoles of ferruginous material cemented together in a fine-grained matrix. The diameter of these pisoles varied from a few millimetres to around one or two centimetres. Laterite outcrops were exposed at several places within the study area. The outcrop of ferruginous bauxite was also seen exposed at northeast, east and south of Village Tumbal, about 800 m NE of Village Dumardih and also about 800 m SW of Village Gaddidara having maximum dimension of around 400 m * 20 m. Small isolated and segregated patches or lenses of bauxite were also recorded within these ferruginous bauxites.
Latehar	Shisatoli-Basdihi	1:4000	4.0	-	-	-	General exploration (G2) for bauxite and associated minerals (Ti, V, Ga, etc) in this area was carried out. An area of 4.00 sq km was covered by Detailed Mapping on 1:4000 scale. Geologically, the study area was observed as flat topped laterite-bauxite-bearing area overlying the Chhotanagpur Granite Gneissic Complex (CGGC). The mineralised zones of bauxite occurred as irregular horizontal lenses or pockets varying in thickness from 1.45 m to 10.50 m. Generally, bauxite underlies the laterite though at a few places, bauxite outcrops were also recorded at the surface, eg. NW of Village Dhurhari and also in a few boreholes (BH-11 & BH-22) which directly intersected bauxite horizons from the surface. The exposed thickness

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Table –3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							of the bauxite horizon was formed to be around 0.50-1.50 m based on visual estimation, but the thickness of bauxite zone as intersected in the boreholes varied from 1.45 m (BH-18) to 10.50 m (BH-2) with a maximum depth of 18.50 m in BH-02. All the boreholes intersected bauxite horizon except borehole BH-09, BH-10 and BH- 24. The bauxite was seen usually underlain by thick zone of lithomarge clays throughout the area having maximum thickness of 33.00 m in boreholes BH-05 & BH-20. The analytical results of the XRD samples showed major amount (>50%) of gibbsite (Al_2O_3 bearing) with small amount (>5-20%) of boehmite, anatase, haematite and goethite. In few samples, goethite was also present as traces (<5%) along with kaolinite and quartz.
Gold and associated minerals							
East-Singhbhum	Netotiril-sana Siajang-Jojodih area	1:12500	100	-	-	-	Reconnaissance survey for gold and associated minerals was carried out in this area. Large-scale Mapping (G4) in an area of 100 sq. km was carried out on 1:12500 scale. The area forms a part of the Archaean volcano sedimentary sequence belonging to Iron Ore Group in the form of a north westerly trending linear enclave within the vast country rock of Singhbhum Granite. Typical alteration features in the form of limonitisation was

(contd)

Table –3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							seen to be present near Bara Ramgarh. Near Siddadih, a 750 m long intense zone of brecciation and secondary silicification was identified to be potential due to presence of very well-developed boxwork features. Chemical analyses result of 61 bedrock samples depicted Cu value in the ranged from 5 to 350 ppm. The value of Pb ranges from 5 to 75 ppm. The value of Zn ranged from 5 to 450 ppm. Smoky quartz vein showed 380 ppm and 220 ppm Zn from near Ragabdih. Trace element concentration of whole rock showed 6,694 ppm Cr and 1,218 ppm Ni in metaultrmafite and 1,209 ppm of Cr and 484 ppm of Ni in fuchsite quartzite near Satpur. Chlorite schist/ metabasic rock showed 465 ppm of barium and 697 ppm of strontium.
East Singhbhum	Bana, Bisrampur Morchagora Bagmara areas	1:12500	100	-	-	-	Reconnaissance Survey (G4) for gold and associated minerals was carried in this area. Large-scale Mapping on 1:12500 scale in 61.7 sq. km area encompassing Bhitar Dari-Morchegora-Baghmara area (Eastern block) and 38.3 sq. km area around Dubrajpur-Bana area (Western block) was taken up. The study area was a part of the Archaean volcano-sedimentary sequence of Gorumahisani-Badampahar greenstone belt. The evidence of mineralisation was noted in form of boxworks,

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Table –3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							pits and vugs on the smoky quartz veins and quartzite/cherty quartzite, malachite stain, goethite-limonite alteration and presence of sulphides (pyrite, chalcopyrite) along the thin veinlets in quartzite in the Eastern block and as dissemination within metabasic rocks in the Western block. The mineralisation observed to be mainly structurally controlled, as the smoky quartz veins were intruded along the S2 foliation plane and sulphides were observed where the evidence of shear was prominent (sigmoidal clasts, S-C shear planes etc.). At the East of Village Kero, visible gold grains were found in pan concentrates of stream sediment sample. Based on the surface indication of mineralisation, it was evident that the mineralised host rock, i.e., tuffaceous phyllite exposed in Bhitar Dari was also seen extending into the study area.
Ranchi Saraikela kharswan	Ichagarh-Tiruldih area	1:12500	100.0	-	-	6	Reconnaissance Survey (G4) for gold and associated minerals in this area was carried out. An area of 100 sq km was mapped on 1 :12500 scale. The various litho-units mapped during field work were acid volcanic rhyolite, tuffaceous phyllite, magnetite-sericite schist, magnetite tuff, phyllite, mica schist, quartzite, brecciated quartzite, amphibolite, gabbro, carbonaceous phyllite, sheared conglomerate, calc-silicate, quartz reef and quartz veins. One major shear zone was identified in the northern part of the area extending for over 15 km from Chogadih in the west to Burathakur Pahar in the east. The mineralised zone was traced further eastward near Baruna

(contd)

Table –3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							Ratai where visible sulphide was present pyrite, chalcopyrite and bornite Besides, two other discrete shear zones were marked in the area, one extending from Chota Amra in the west to Gaurangkocha in the east and other running south west of Hutup in NW-SE direction . Stream sediment samples from streams draining the shear zones yielded visible gold flakes. Six samples from 1st order up to 3rd order streams contained visible gold. The value of Cu was seen ranging from 5 -800 ppm; Pb from 5-57 ppm and Zn from 6-230 ppm. Based on field indications, the Hutup block, Baruna Ratai block, Chogadih block and the Burathakur block were found to be promising.
Au-Cu-Zn							
West Singhbhum	Kotiya-Kamrora area	-	-	-	-	-	Reconnaissance survey (G4) for Au-Cu-Zn was carried out in this area. The area was predominant in meta-volcano sedimentary piles of Chandil and Dalma formations and exhibited high gravity and magnetic values attributed to the abundance of basic/ultrabasic rocks. Numerous quartz veins of both milky and smoky variety cross cut through the metabasic rocks as well as in the micaschists. The smoky quartz vein contained specks of chalcopyrite at a few places. The chemical data of metabasalts showed that the Cu value ranged from 169 to 260 ppm, Zn value from 65 to 88 ppm. The Cu value in a smoky quartz vein showed 33 to 169 ppm and Zn value showed 24 to 233 ppm. The Cu content in micaschist varied from 95 to 112 ppm. Fe_2O_3 (T) content in laterite ranged from 28.91 % to 55.20 %. The Vanadium content in Laterite varied from 616 to 1,392 ppm. Gold values from 13 samples revealed values less than 50 ppb.

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Table –3 (concld)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
MECL							
Bauxite							
Gumla	Mahuapattoli-Harduba block	1:2000	0.604	17	-	478	In Jharkhand, a G2 level exploration in Mahuapattoli-Harduba block, Serandag plateau, Gumla district was carried out with the objectives to i) prove the occurrences of bauxite zones, assess the bauxite resources both quantitatively and qualitatively etc. The exploration comprised mapping of 0.604 sq.km on 1:2000 scale, 206.50 m core drilling in 8 boreholes, 193.80 m vacuum suction drilling in 9 boreholes. A total of 478 samples were collected for various studies/ analysis.The total resources estimated in the block was (i) 0.2354 million tonnes of 42.14% Al_2O_3 and 8.39% SiO_2, ii) 1.1223 million tonnes of 44.63% Al_2O_3 and 2.89% SiO_2,, iii) 2.5245 million tonnes of >39.95% Al_2O_3 and 4.34% SiO_2 under indicated category.
Lohadaga	Maduapat, Kisko block	1:2000	0.363	38	-	952	In Lohadaga district, a G2 level exploration in Madupat, vilaage. Kisko block was carried out with the objectives to i) prove the occurrences of bauxite zones, assess the bauxite resources both quantitatively and qualitatively etc. The exploration comprised mapping of 0.363 sq.km on 1:2000 scale, 403.80 m core drilling in 21 boreholes, 299.20 m vacuum suction drilling in 17 boreholes. A total of 952 samples were collected for various studies/analysis.The total resources estimated in the area was (i) 2.88 million tonnes of >37.26% Al_2O_3 and 3.34% SiO_2, ii) 0.82 million tonnes of >38% Al_2O_3 and <5% SiO_2,, iii) 0.44 million tonnes of 44.22% Al_2O_3 and 2.78% SiO_2, iv) 8.89 million tonnes of >31.72% Al_2O_3 and 21.11% SiO_2 for aluminous laterite under indicated category.

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Table – 4 : Mineral Production in Jharkhand, 2017-18 to 2019-20 (Excluding Atomic Minerals)

(Value in ₹'000)

Mineral	Unit	2017-18			2018-19			2019-20 (P)		
		No. of mines	Quantity	Value$	No. of mines	Quantity	Value$	No. of mines	Quantity	Value$
All Minerals		**59**		**24558407**	**61**		**31567789**	**48**		**31585557**
Coal	'000t	-	123297	-	-	134666	-	-	131763	-
Natural Gas (ut.)+	m c m	-	4	-	-	4	-	-	5	-
Bauxite	t	25	2593647	2275062	23	2412486	2479551	19	1418794	1301660
Copper Ore	t	-	178700	-	-	242977	-	-	288423	-
Copper Conc.	t	2	5072	173107	2	6594	529620	2	7766	601558
Gold Ore	t	-	4618	-	-	2134	-	-	-	-
Gold	kg	1	11	31952	1	3	7897	-	-	-
Iron Ore	'000t	20	20169	20636973	20	23433	27673520	19	26888	28897864
Manganese Ore	t	3	4783	44527	4	4785	39839	2	4785	35577
Graphite (r.o.m.)	t	2	18735	19120	4	15831	17974	3	19426	20380
Limestone	'000t	6	1190	976218	7	1248	417940	3	783	327070
Minor Minerals @		-	-	401448	-	-	401448	-	-	401448

Note: *The number of mines excludes Fuel and Minor minerals.*

$ Excludes the value of Fuel minerals.

+ Coal Bed Methane

@ Figures for earlier years have been repeated as estimates because of non-receipt of data.

Table – 5 : Principal Mineral-based Industries

Industry/plant	Capacity ('000 tpy)
Alumina	
Hindalco Industries Ltd, Muri.	450 KTPA
Asbestos Products	
Hyderabad Industries Ltd, Jasidih, Distt Deogarh.	NA
Cement	
ACC Ltd, Chaibasa, Distt Singhbhum.	900
ACC Ltd, Sindri, Distt Dhanbad (G).	2350
Bokaro Cement Plant (formerly JV of Jaypee Cement & SAIL), Bokaro (G).	2100
Lafarge, Jojobera, Distt Singhbhum.	4600
Burnpur Cement Patratu Ramgarh	300
Ceramic	
Maithan Ceramics Pvt. Ltd, Dhanbad.	80

(contd)

Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Chemicals	
Bihar Caustic & Chemicals Ltd, Garhwa Road, Distt Palamu.	92.75 (caustic soda lye)
Copper Smelter	
HCL, ICC, Ghatsila, Distt Singhbhum (East).	19 (refined copper) 20.5 (copper smelting) 18.5 (copper cathode) 84 (fabricated wire bar) 54(H_2SO_4), 390 t ($NiSO_4$) 480 kg ($CuSO_4$) 14.6 kg (selenium) 9868 kg (Ag), 698 kg (Au)
Foundry	
Grind chem, Adityapur	15 (Foundry fluxes)
Jharkhand Grid chem Pvt. Ltd, Adityapur, Gamharia	25 (Foundry fluxes)

(contd)

Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Iron & Steel	
Bokaro Steel Plant, Bokaro	6900 (sinter) 4585 (pig iron) 4500 (Crude/liquid steel) 35.5 (H_2SO_4) 27.2 (ammonium sulphate)
Tata Steel Ltd, Jamshedpur	6000 (pellets) 8000 (sinter) 10550 (Pig Iron) 13000 (Crude/liquid steel)
Usha Martin Ltd, Jamshedpur.	500 (Sponge iron) 1200 (pellets) 715 (sinter) 1000 (Liquid/ crude Steel)
Pellet	
Orissa Manganese & Minerals Ltd, Kandra, Sarai Kharsawan.	1600 (pellets)
Pig Iron	
Atibir Industries Pvt. Ltd, Bhorandiha, Giridih	600 120 (Sponge iron) 680 (sinter)
Elcctrosteel Steels Ltd, Siyal Jori, Chandan Kiyari	1500
Sponge Iron	
Anindita Steel Ltd, Senegarha Rabodh	120
Ashirwad Steel & Industries Ltd, Gamharia, Jamshedpur.	72
Bihar Sponge Iron Ltd, Chandil, Distt Saraikela-Kharsawan.	210
Brahmaputra Metallics Limited, Kamta, Gola, Distt Ramgarh.	105 148.5 (Semi-finished Steel)
Balmukund Sponge & Iron Pvt. Ltd, Majhaladih, Gadisrirampur	63 75 (Crude/liquid steel) 37 ((Pig Iron)
Chintpurni Steel Pvt. Ltd, Indra, Zarba	90 100 (Semi-finished steel)
Jai Durga Iron Pvt. Ltd, (I &II) Jhumari Tellaiya, Distt Koderma	(36+66) =96

(contd)

Table - 5 (concld)

Industry/plant	Capacity ('000 tpy)
Jai Balaji Industrial Engg. Ltd, Barajamda	120
Rungta Mines Limit Chaliyama Rajnagar	620.4
Saluja Steels & Power Pvt. Ltd, Mahtodih.	60
Satpuria Alloys Pvt. Ltd, Manjhladih	60
Shivam Iron & Steel Co. Ltd, Bandhi, Chandwara	90
Zoom Vallabh Steels Ltd, Dugdha, Distt Saraikela-Kharsawan.	120
Ferro Alloys	
Astha Ferrotech Pvt. Ltd, Adityapur, Tatanagar	201
Anjaney Ferro Alloys Ltd, Mahijam	12
Bihar Foundary & Ccasting Ltd, Marar	36
Dayal Ferroalloy, Ramgarh cantt	10
Gautam Ferro Alloys Ltd,	5.5
Shivam Iron & Steel Co. Ltd, Jambad, Udnabad	37.4 (Si-Mn)
Tin Plates	
The Tin Plate Co. of India Ltd, Jamshedpur.	379
Glass	
IAG Co. Ltd, Bhandainagar.	360 TPD
Refractory	
SAIL Refractory Unit (formerly Bharat Refractories Ltd,), Ranchi Road, Ramgarh.	7.5
SAIL Refractory Unit (formerly Bharat Refractories Ltd,), IFICO, Ramgarh.	42
SAIL Refractory Unit (formerly Bharat Refractories Ltd,), Bhandaridah, Distt Bokaro.	26
Jharia Firebricks Pottery Works (P) Ltd, Dhansar, Distt Dhanbad.	20
Mineral Trade Corporation Khaparsai, Chaibasa	6.6
Raj Refractory (P) Ltd, Hardag, Distt Ranchi.	6

G; Grinding Unit

Note: *Data, for Cement Industries on respective websites, is taken from Survey of Cement Industry & Directory.*