



Indian Minerals Yearbook 2019

(Part-III: Mineral Reviews)

58th Edition

IRON ORE

(FINAL RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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16 Iron Ore

Iron & steel is the driving force behind industrial development in any country. The vitality of the Iron & Steel Industry largely influences a country's economic status. The mining of iron ore, an essential raw material for Iron & Steel Industry is arguably of prime importance among all mining activities undertaken by any country. With the total resources of over 33.276 billion tonnes of haematite (Fe_2O_3) and magnetite (Fe_3O_4), India is one of the leading producers of iron ore in the world.

RESERVES/RESOURCES

Haematite and magnetite are the most important iron ores in India. About 79% haematite ore deposits are found in the Eastern Sector (Assam, Bihar, Chhattisgarh, Jharkhand, Odisha & Uttar Pradesh) while about 93% magnetite ore deposits occur in Southern Sector (Andhra Pradesh, Goa, Karnataka, Kerala & Tamil Nadu). Karnataka alone contributes 72% of magnetite deposit in India. Of these, haematite is considered to be superior because of its higher grade. Indian deposits of haematite belong to the Precambrian Iron Ore Series and the ore is within banded iron ore formations occurring as massive, laminated, friable and also in powdery form.

As per NMI database based on UNFC system, the total reserves/resources of haematite as on 1.4.2015 have been estimated at 22,487 million tonnes of which 5,422 million tonnes (24%) are under 'Reserves' category and the balance 17,065 million tonnes (76%) are under 'Remaining Resources' category. By grades, Lumps constitute about 56% followed by Lumps with Fines (17%), Fines (16%), and the remaining 11% are Black Iron ore, Beneficial grade, Others, Unclassified, Not-known and Lumps & fines & blue dust unclassified grade. Major reserves/resources of haematite are located in Odisha (7,559 million tonnes or 34%), Jharkhand (5,286 million tonnes or 23%), Chhattisgarh (4,858 million tonnes or 22%), Karnataka (2,467 million tonnes or 11%) and Goa (1,189 million tonnes or 5%). The balance 5% resources of haematite are spread in Andhra Pradesh, Assam, Bihar, Madhya

Pradesh, Maharashtra, Meghalaya, Rajasthan, Telangana and Uttar Pradesh (Table-1).

Magnetite is another principal iron ore that also occurs in the form of oxide, either in igneous or metamorphosed banded magnetite-silica formation. As per NMI database based on UNFC system, the total reserves/resources of magnetite as on 1.4.2015 have been estimated at 10,789 million tonnes of which 'Reserves' constitute a mere 53 million tonnes while 10,736 million tonnes are placed under 'Remaining Resources'. Classification on the basis of grades shows that 20% resources are of Metallurgical grade while 80% resources belong to grades that are categorised as Unclassified, Not-known and Coal Washery. The resources of Others and Foundry grades constitute meagre proportions. India's 98% magnetite reserves/resources are located in five States, namely, Karnataka (7,802 million tonnes or 72%) followed by Andhra Pradesh (1,392 million tonnes or 13%), Rajasthan (617 million tonnes or 6%), Tamil Nadu (507 million tonnes or 5%) and Goa (266 million tonnes or 2%). Assam, Bihar, Chhattisgarh, Jharkhand, Kerala, Maharashtra, Meghalaya, Nagaland, Odisha and Telangana together account for the remaining 2% resources (Table-2).

EXPLORATION & DEVELOPMENT

The Exploration & Development details, if any, are covered in the Review "Exploration & Development" in Volume-I of Indian Minerals Yearbook titled "General Reviews".

PRODUCTION

The production of iron ore constituting lumps, fines and concentrates was 206.44 million tonnes in the year 2018-19, showing an increase of about 2.49% as compared to that in the preceding year. There were 254 reporting mines in 2018-19 as against 304 in the previous year. Among them, 35 mines were in the Public Sector and 219 in Private Sector. Besides, production of iron ore was reported as associated mineral by 8 mines in 2018-19 which is equal to the year 2017-18. The contribution of Public Sector to

the total production was about 34% which is almost same as compared to the preceding year. The remaining 66% of the production in 2018-19 was from Private Sector. Among 35 iron ore mines in Public Sector, 18 iron ore mines each producing more than one million tonnes annually accounted for about 96.06% of the total output in Public Sector during 2018-19. Out of 219 iron ore mines and 8 associated mines in Private Sector, 30 iron ore mines each producing more than one million tonne annually accounted for about 83.70% of the total output of Private Sector during the year. Thus, 48 iron ore mines each producing more than one million tonnes of iron ore annually contributed about 87.95% of the total output in 2018-19. The captive mines reported production of 64.22 million tonnes comprising about 31% of total production and non-captive mines reported production of 142.22 million tonnes, i.e., about 69% during 2018-19.

Gradewise analysis of the current year's output reveals that out of total output of 206.44 million tonnes, iron ore lumps constituted 66.61 million tonnes (i.e., about 32.26%), fines constituted 138.38 million tonnes (i.e., about 67.02%) and concentrates constituted 1.46 million tonnes (i.e., about 0.72%).

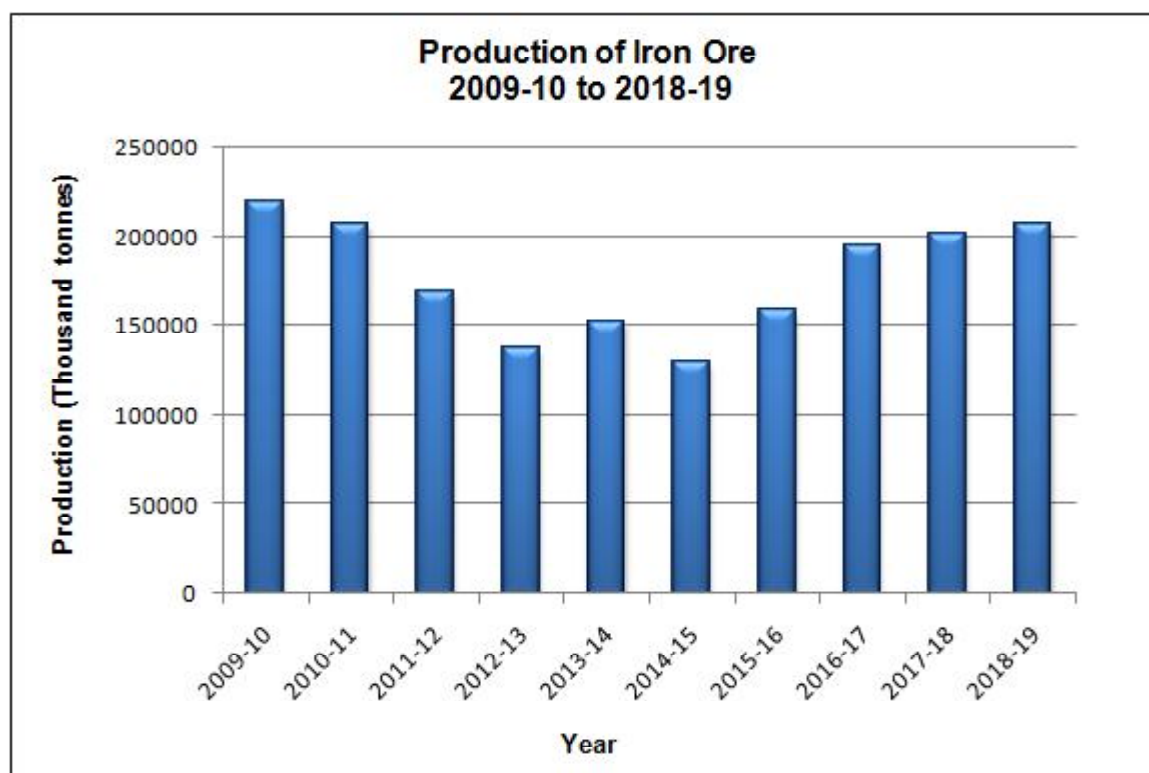
Among the States, Odisha recorded the highest production of 113.05 million tonnes, i.e., about 54.76% of the country's total production in 2018-19. Chhattisgarh was at the second place with a production of 34.94 million tonnes, i.e., about 16.92% of the total production followed by Karnataka with a production of 29.79 million tonnes, i.e., about 14.43% and Jharkhand with 23.43 million tonnes, i.e. about 11.35% of the country's production. The remaining 5.23 million tonnes, i.e., 2.54% production was reported from Andhra Pradesh, Goa, Madhya Pradesh, Maharashtra, Rajasthan and Telangana.

STOCKS AT MINE-HEAD

The mine-head closing stocks of iron ore for the year 2018-19 were 162.64 million tonnes as compared to 152.95 million tonnes in 2017-18.

EMPLOYMENT

The average daily employment of labour was 43,371 during 2018-19 as against 45,988 in the preceding year (Tables - 3 to 7).



**Table – 1 : Reserves/Resources of Iron Ore (Haematite) as on 1.4.2015
(By Grades/Stages)**

(In '000 tonnes)

Grade/State	Reserves				Remaining Resources							Total Resources (A+B)	
	Proved STD111	Probable		Total Feasibility STD211	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)				
		STD121	STD122							STD221	STD222		
All India : Total	4053032	449917	918801	5421751	3441103	1573822	1496674	1762741	1798557	4498142	2491176	17065214	22486965
By Grades													
Lump, high grade	1207974	2751	213649	1424375	458544	40887	144840	198115	37065	195774	74865	1150092	2574466
Lump, medium grade	1021112	94231	325808	1441151	1726230	737324	645733	912442	997496	1141891	6039	6167154	7608306
Lump, low grade	122710	50314	89654	262679	195265	78584	132621	39796	127858	925985	225687	1725796	1988474
Lump, unclassified grade	204	28	16	248	56654	-	8791	16969	34488	152248	22800	291951	292200
Fines, high grade	271459	-	79169	350628	18995	1889	4849	146969	11174	25567	4890	214334	564962
Fines, medium grade	120083	62207	6571	188862	50161	265570	49801	337543	286918	494180	932	1485104	1673967
Fines, low grade	237700	31006	41557	310263	196422	119619	120401	11163	94702	401756	6094	950157	1260420
Fines, unclassified grade	389	-	593	982	343	669	130	8624	12908	118978	15200	156851	157833
Lumps & fines high grade	195566	12720	-	208286	84292	94614	67894	9748	8561	61307	112375	438791	647077
Lumps & fines medium grade	440515	73933	84121	598568	134534	56987	101242	994	15969	201152	241259	752136	1350705
Lumps & fines low grade	166999	5718	37294	210012	270249	73244	87740	27296	64404	431242	160391	1114567	1324579
Lumps & fines unclassified	123828	94850	26131	244809	73134	10373	21754	44082	100360	100693	4088	354485	599293
Black iron ore	-	-	-	-	7017	3014	1355	-	1059	6661	-	19106	19106
Lump low & medium grade	9529	5259	-	14788	-	13865	-	-	-	-	-	13865	28653
Beneficiable grade	31307	11183	714	43204	115078	44183	88181	1538	1003	64982	63708	378673	421877
Others	28413	-	2521	30934	19712	60	10861	708	1432	5197	745	38715	69649
Unclassified	60225	3356	8750	72331	36845	10699	8263	4746	3006	12094	27252	102905	175236
Not-known	2673	614	1148	4434	629	20000	1659	-	151	158432	1524850	1705721	1710155
Lumps & fines & blue dust unclassified grade	12345	1746	1106	15197	-	2241	560	2009	-	-	-	4810	2007

(Contd)

Table-1(Concl'd) (In '000 tonnes)

Grade/State	Reserves				Remaining Resources				Total Resources (A+B)				
	Proved STD111	Probable		Feasibility STD211	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334			
		STD121	STD122								Total (A)	Total (B)	
By States													
Andhra Pradesh	17664	273	11832	29768	40595	49589	68425	377	4666	147628	13	311293	341062
Assam	-	-	-	-	-	-	-	-	8600	4000	-	12600	12600
Bihar	-	-	-	-	-	-	-	-	-	55	-	55	55
Chhattisgarh	1067636	78071	241730	1387437	255074	61735	47394	921139	613433	801086	770827	3470687	4858124
Goa	297271	34709	26259	358239	301806	214187	134955	15286	11535	141558	11747	831075	1189313
Jharkhand	365111	29238	45022	439372	1081242	458866	457724	207324	597413	673009	1371468	4847045	5286417
Karnataka	416684	46169	87394	550247	518155	48231	211632	248299	44094	669239	176956	1916607	2466854
Madhya Pradesh	44203	3635	14225	62063	48412	3650	36774	23243	9008	146803	10	267900	329963
Maharashtra	11283	3032	2926	17241	9028	6673	8858	75724	71806	72588	32185	276862	294103
Meghalaya	-	-	-	-	-	-	-	-	-	225	-	225	225
Odisha	1830569	252615	489034	2572217	1180055	704302	530440	271349	426493	1773077	100730	4986447	7558664
Rajasthan	2103	2175	380	4658	8764	6105	471	-	11510	6897	-	33745	38404
Telangana	509	-	-	509	973	483	-	-	-	23977	27240	52673	53181
Uttar Pradesh	-	-	-	-	-	20000	-	-	-	38000	-	58000	58000

Figures rounded off

**Table – 2 : Reserves/Resources of Iron Ore (Magnetite) as on 1.4.2015
(By Grades/States)**

Grade/State	Reserves				Remaining Resources							Total Resources (A+B)	
	Proved STD111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
		STD121	STD122			STD221	STD222						
All India : Total	30352	2311	20037	52699	223388	15494	64091	1513195	1984566	6351286	584436	10736455	10789155
By Grades													
Metallurgical	8355	-	3308	11663	165948	-	21530	690596	342792	964399	255	2185521	2197183
Coal washery	16782	-	15847	32629	265	675	11001	411	318	37512	15455	65636	98265
Foundry	-	-	-	-	330	125	-	-	-	381	-	836	836
Others	749	-	443	1192	3796	985	62	-	-	1791	-	6633	7826
Unclassified	4099	2311	196	6606	52978	13709	31493	822188	1641456	5066948	568677	8197449	8204056
Not-known	366	-	243	609	71	-	6	-	-	280254	48	280379	280989
By States													
Andhra Pradesh	-	-	-	-	43105	-	-	13800	1266666	68527	-	1392098	1392098
Assam	-	-	-	-	-	-	-	-	-	15380	-	15380	15380
Bihar	-	-	-	-	-	-	-	-	-	2659	-	2659	2659
Chhattisgarh	8087	-	3096	11183	-	-	42	-	-	-	-	42	11225
Goa	4364	-	626	4990	59509	14516	33512	-	-	151811	1997	261345	266336
Jharkhand	-	-	-	-	-	518	1986	411	3948	3722	82	10667	10667
Karnataka	319	127	-	446	120022	-	18375	1498957	479372	5345018	340000	7801744	7802190
Kerala	-	-	-	-	-	-	-	-	59912	23523	-	83435	83435
Maharashtra	359	-	225	583	149	-	63	-	-	90	-	302	885
Meghalaya	-	-	-	-	-	-	-	-	-	3380	-	3380	3380
Nagaland	-	-	-	-	-	-	-	-	5280	-	-	5280	5280
Odisha	74	-	-	74	8	-	-	27	-	43	-	79	152
Rajasthan	17148	2185	16090	35423	595	460	10113	-	-	554904	15422	581493	616916
Tamil Nadu	-	-	-	-	-	-	-	-	169388	110728	226921	507037	507037
Telangana	-	-	-	-	-	-	-	-	-	71500	14	71514	71514

Figures rounded off

Table - 3 :Principal Producers of Iron Ore, 2018-19

Name & address of producer	Location of mine	
	State	District
National Mineral Development Corporation Ltd 10-3-311/A, Khanij Bhavan, Castle Hills, Masab Tank, Hyderabad –500 028	Chhattisgarh Karnataka	Dantewada Bellary
Steel Authority of India Ltd Ispat Bhavan, Lodhi Road, New Delhi – 110 003	Chhattisgarh Jharkhand Odisha	Durg Singhbhum (West) Keonjhar, Sundargarh
Tata Steel Ltd Bombay House, 24, Homi Mody Street, Fort, Mumbai – 400 001, Maharashtra	Jharkhand Odisha	Singhbhum (West) Keonjhar
Rungta Mines (P) Ltd 8 A Express Tower, 42 A-Shakespeare Sarani, Kolkata – 700 017, West Bengal	Jharkhand Odisha	Singhbhum (West) Keonjhar
Essel mining & Industries Ltd Industry House, 18 th Floor, Kolkata-700 017, West Bengal, Kolkata-700069, West Bengal.	Odisha	Sundargarh Keonjhar
Odisha Mining Corporation Ltd, OMC House, Unit-5, P.B. No.34 Distt Khurda, Bhubaneswar-751 001, Odisha	Odisha	Keonjhar Sundargarh
Serajuddin & Co. P-16, Bentink Street, Kolkata-700069, West Bengal	Odisha	Keonjhar
Rungta Sons (P) Ltd 8A Express tower, 42A-Shakespeare Sarani, Kolkata - 700 017, West Bengal	Odisha	Sundargarh
Ramesh Prasad Sao, Euroean Quarter, Opposite Gandhi Maidan, Chaibasa - 833 201 Distt Singhbhum (West), Jharkhand	Odisha	Keonjhar
Kamaljeet Singh Ahluwalia, Near MMTC Weigh Bridge P.B.No. 3, Distt Keonjhar, Barbil-758 035, Odisha	Odisha	Keonjhar

(Contd)

Table - 3 (Concl'd)

Name & address of producer	Location of mine	
	State	District
Kaypee Enterprises, Near MMTC Weigh Bridge, P.B. No.3, Distt Keonjhar, At/PO-Barbil-758 035, Odisha	Odisha	Keonjhar
Vedanta Ltd Sesa Ghor, EDC complex, Patto, Panaji, Tiswadi-403 001 Goa	Karnataka	Chitradurga
Indrani Patnaik, A/6, Commercial Estate, Civil Township, Rourkela - 769 004 Odisha	Odisha	Keonjhar
Bonai Industrial Co. Ltd Rungta Office, Main Road, Distt Keonjhar, P.O. Barbil-758 035, Odisha	Odisha	Sundargarh
Aryan Mining & Trading Corp. (P) Ltd Aryan House 8th Floor, P-1, Hide Lane, Kolkata-700073, West Bengal	Odisha	Sundargarh
Freegrade & Co. (P) Ltd 8 A, Express Tower, 42 A- Shakespeare Sarani, Kolkata- 700 017, West Bengal	Odisha	Sundargarh
Jindal Steel & Power Ltd O.P. Jindal Marg, Delhi Road, Hissar - 125005 Haryana	Odisha	Sundargarh
Usha Martin Ltd Mangal Kalash, 2 A Shakespeare Sarani, Kolkata-700 071, West Bengal	Jharkhand	Singhbhum (West)
Khatau Narbheram & Co., N.V. Ram Complex, Distt Keonjhar, Barbil-758 035, Odisha	Odisha	Keonjhar
M.S.P.L. Ltd Baladota Enclave Abheraj, Baldota Road, Bellary-583203 Karnataka	Karnataka	Bellary

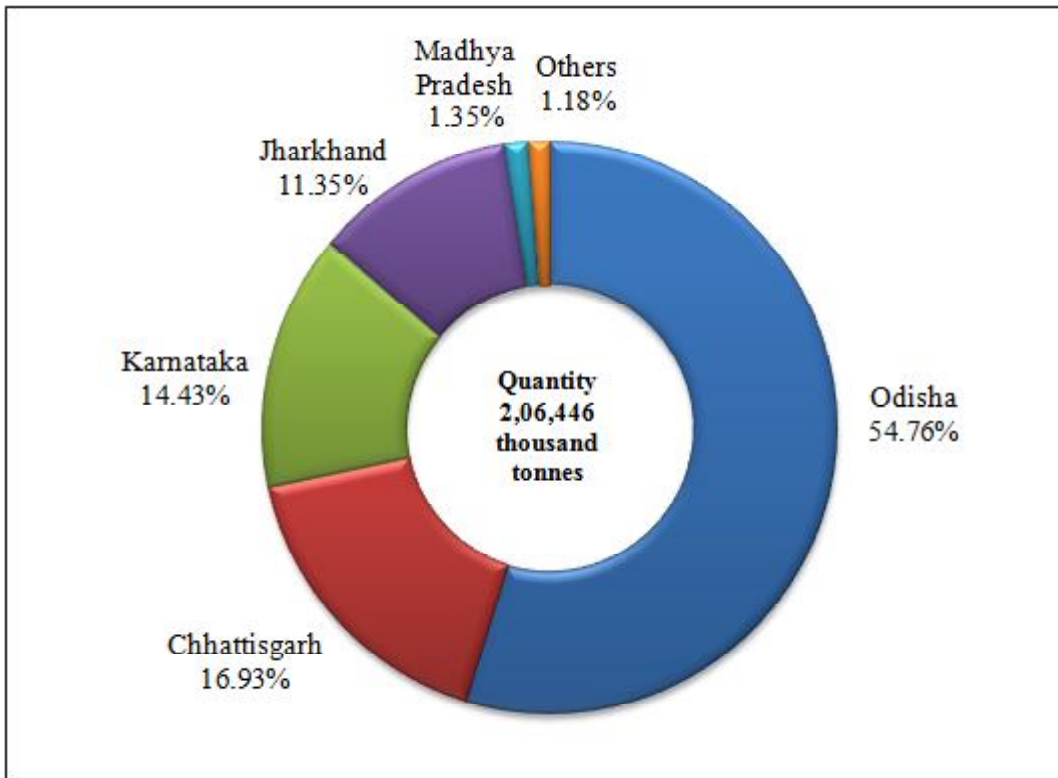
**Table – 4 : Production of Iron Ore, 2016-17 to 2018-19
(By States)**

(Quantity in '000 tonnes; Value in `000)

States		2016-17		2017-18		2018-19 (P)	
		Quantity	Value	Quantity	Value	Quantity	Value
India	Total	194584	252291800	201426	347131039	206446	451841360
	Lumps	65325	102868610	65426	139519273	66610	195518436
	Fines	128100	146288294	134456	203119742	138376	251779677
	Concentrates	1159	3134896	1544	4492024	1460	4543247
Andhra Pradesh	Total	485	264799	674	402892	655	419460
	Lumps	302	204091	402	320091	362	260124
	Fines	183	60708	272	82801	293	159336
Chhattisgarh	Total	33285	60676299	34418	81546969	34945	99949981
	Lumps	12094	24402985	12222	31781088	11661	38430356
	Fines	21191	36273314	22196	49765881	23284	61519625
Goa	Total	9170	11555369	10279	12616879	-	-
	Lumps	2044	2776889	2075	2149976	-	-
	Fines	7075	8712618	8134	10386698	-	-
	Concentrates	51	65862	70	80205	-	-
Jharkhand	Total	21224	14623291	20169	20636973	23433	21883834
	Lumps	5938	4646787	6090	6984493	6273	6975956
	Fines	15286	9976504	14079	13652480	17160	14907878
Karnataka	Total	26483	44516153	28691	74742826	29796	74094496
	Lumps	8890	16622762	9427	27966193	9134	27355895
	Fines	17593	27893391	19264	46776633	20662	46738601
Madhya Pradesh	Total	1771	767339	2743	1239712	2792	1449207
	Lumps	136	108922	359	186400	541	271602
	Fines	1633	655590	2384	1053312	2251	1177605
	Concentrates	2	2827	-	-	-	-
Maharashtra	Total	1321	1152442	940	1029104	660	888797
	Lumps	231	370585	323	500406	283	509013
	Fines	1090	781857	617	528698	377	379784
Odisha	Total	99617	115628185	102186	150845108	113055	249545424
	Lumps	35568	53693920	34398	69584107	38199	121668841
	Fines	64049	61934265	67504	80870647	74349	126896759
	Concentrates	-	-	284	390354	507	979824
Rajasthan	Total	1228	3107923	1320	4066062	1108	3608871
	Lumps	122	41669	126	43505	155	45359
	Fines	++	47	4	1091	++	89
	Concentrates	1106	3066207	1190	4021466	953	3563423
Telangana	Total	-	-	6	4514	2	1290
	Lumps	-	-	4	3014	2	1290
	Fines	-	-	2	1500	-	-

++ : Negligible

Quantity of Iron Ore Production in Different States, 2018-19



Value of Iron Ore Production in Different States, 2018-19

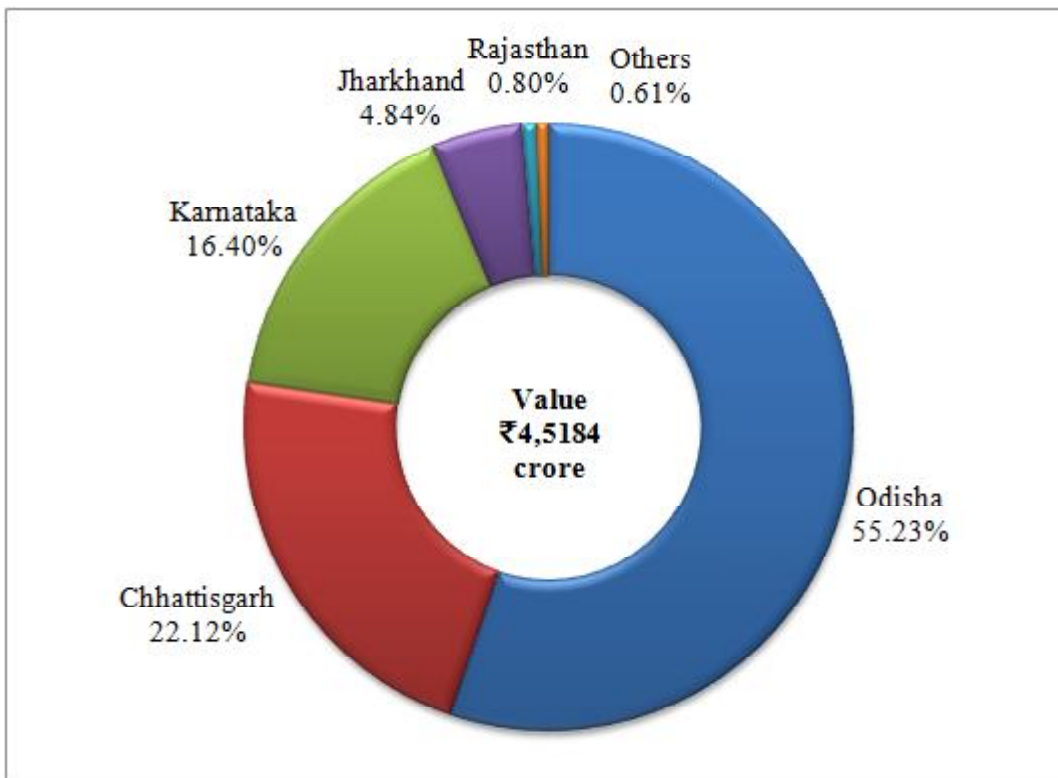


Table - 5 (A) : (Concl'd)

Sector/ State/ District	No. of mines	Lumps										Fines														
		Below 55% - 58% - 60% - 62% - 65%					Total					Below 55% - 58% - 60% - 62% - 65%					Total									
		55% below					Fe & above					Fe & above					Fe & above									
		Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%
Madhya Pradesh	15 (4)	319	24	16	++	-	-	-	-	359	186400	2369	12	3	++	-	-	-	-	2384	1053312	-	-	-	2743	1239712
Chhatrapur	1	6	24	16	++	-	-	-	-	46	39020	-	-	2	-	-	-	-	2	2620	-	-	-	48	41640	
Gwalior	1	-	-	-	-	-	-	-	-	-	-	19	-	-	-	-	-	-	19	7132	-	-	-	19	7132	
Jabalpur	12 (4)	306	-	-	-	-	-	-	-	306	139729	2350	12	1	++	-	-	-	2363	1043560	-	-	-	2669	1183289	
Sagar	1	7	-	-	-	-	-	-	-	7	7651	-	-	-	-	-	-	-	-	-	-	-	-	7	7651	
Maharashtra	15	71	54	175	23	-	-	-	-	323	500406	293	238	86	-	-	-	-	617	528698	-	-	-	940	1029104	
Chandrapur	2	-	15	-	-	-	-	-	-	15	24556	19	-	7	-	-	-	-	26	23302	-	-	-	41	47858	
Gadchiroli	2	-	1	175	1	-	-	-	-	177	340825	-	-	-	-	-	-	-	-	-	-	-	-	177	340825	
Gondia	3	8	-	-	-	-	-	-	-	8	15621	3	-	-	-	-	-	-	3	2362	-	-	-	11	17983	
Sindhudurg	8	63	38	-	22	-	-	-	-	123	119404	271	238	79	-	-	-	-	588	503034	-	-	-	711	622438	
Odisha	62 (2)	244	477	2473	3029	21504	6671	34398	69584107	207	4172	2746	4172	2746	9023	43138	8218	67504	80870647	284	390354	102186	150845108			
Keonjhar	36 (1)	16	-	670	262	16479	6198	23625	42804669	49	2725	431	5460	30317	8070	47052	-	-	56146391	-	-	-	70677	98951060		
Mayurbhanj	3	16	38	737	5	41	81	918	2417084	27	113	215	1	-	2	358	-	-	253422	-	-	-	1276	2670506		
Sundargarh	23 (1)	212	439	1066	2762	4984	392	9855	24362354	131	1334	2100	3562	12821	146	20094	284	390354	24470834	284	390354	30233	49223542			
Rajasthan	11	126	-	-	-	-	++	126	43505	4	-	-	-	-	-	4	1091	1190	4021466	1320	4066062					
Bhilwara	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Jaipur	4	77	-	-	-	-	++	77	22366	-	-	-	-	-	-	-	-	-	-	-	-	-	77	22366		
Jhunjhunu	2	2	-	-	-	-	-	2	660	-	-	-	-	-	-	-	-	-	-	-	-	-	2	660		
Sikar	2	47	-	-	-	-	-	47	20479	4	-	-	-	-	-	4	1091	-	-	-	-	-	51	21570		
Karauli	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Telangana	(1)	4	-	-	-	-	-	4	3014	2	-	-	-	-	-	-	-	-	1500	2	1500	6	4514			
Khammam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-		
Warangal	(1)	4	-	-	-	-	-	4	3014	2	-	-	-	-	-	-	-	-	1500	2	1500	6	4514			

++ Negligible *Only labour reported; () : No. of mines reported as associated minerals

Table – 5 (B) : Production of Iron Ore, 2018-19 (P)
(By Sectors/States/Districts/Grades)

(Quantity in '000 tonnes; Value in '000)

Sector/ State/ District	No. of mines	Lumps										Fines										Total					
		Below 55% - 55% below Fe		58% - 60% below Fe		60% - 62% below Fe		62% - 65% below Fe		65% & above		Total		Below 55% - 55% below Fe		58% - 60% below Fe		60% - 62% below Fe		62% - 65% below Fe		65% & above		Total		Total	
		Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Fe	Value	Qty	Value	Qty	Value
India	254(8)	2328	2400	4920	6599	32040	18323	66610	195518436	5991	4905	10709	21605	70279	24887	138376	251779677	1460	4543247	206446	451841360						
Public Sector	35	50	72	207	1855	14504	8893	25581	72603263	62	360	1182	9822	24617	9463	45506	94097856	-	-	-	-	-	-	-	-	-	-
Private Sector	219(8)	2278	2328	4713	4744	17536	9430	41029	122915173	5929	4545	9527	11783	45662	15424	92870	157681821	1460	4543247	135358	285140241						
Andhra Pradesh	16	362	-	-	-	-	-	362	260124	293	-	-	-	-	-	293	159336	-	-	655	419460						
Anantapur	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Cuddapah	2	282	-	-	-	-	-	282	191803	229	-	-	-	-	-	229	124247	-	-	-	316050						
Krishna	1	-	-	-	-	-	-	-	-	++	-	-	-	-	-	++	28	-	-	-	28						
Kurnool	10	80	-	-	-	-	-	80	68321	64	-	-	-	-	-	64	35061	-	-	-	103382						
Nellore	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Prakasam	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Chhattisgarh	18	126	308	96	653	2351	8127	11661	38430356	788	414	473	3411	9326	8872	23284	61519625	-	-	-	34945	99949981					
Dantewara	6	-	-	31	4	141	7938	8114	34260187	-	6	143	620	7757	7848	16374	53060071	-	-	-	24488	87320258					
Durg	4	18	-	-	419	2041	189	2667	2922258	15	-	-	2282	1536	391	4224	4724132	-	-	-	6891	7646390					
Kanker	5	19	180	4	183	169	-	555	811585	487	305	247	495	33	633	2200	3030000	-	-	-	2755	3841585					
Narayanpur	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Rajnandgaon	2	89	128	61	47	-	-	325	436326	286	103	83	14	-	-	486	705422	-	-	-	811	1141748					
Goa	47	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
North Goa	14	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
South Goa	33	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Jharkhand	19	4	237	937	1320	2084	1691	6273	6975956	109	1014	1120	2281	5610	7026	17160	14907878	-	-	-	23433	21883834					
Singhbhum (West)	19	4	237	937	1320	2084	1691	6273	6975956	109	1014	1120	2281	5610	7026	17160	14907878	-	-	-	23433	21883834					
Karnataka	54	412	1119	1088	1823	4428	264	9134	27355895	1327	1796	6199	2066	8910	364	20662	46738601	-	-	-	29796	74094496					
Bagalkot	3	111	28	-	-	-	-	139	282126	55	-	-	-	-	-	55	76340	-	-	-	194	358466					
Ballari	43	217	744	977	1114	4102	264	7418	22825388	656	1716	2653	1935	8726	364	16050	39464109	-	-	-	23468	62289497					
Chitradurga	6	84	347	111	709	326	-	1577	4248381	616	80	3546	131	184	-	4557	7198152	-	-	-	6134	11446533					
Tumakuru	2*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-

(Contd)

Table - 5 (B) : (Concl'd)

Sector/ State/ District	No. of mines	Lumps										Fines													
		Below 55% - 58% - 60% - 62% - 65% 55% below					65% Fe & above					Below 55% - 58% - 60% - 62% - 65% 55% below					65% Fe & above								
		Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%	Fe	58%	60%	62%	65%				
		Qty	Value	Qty	Value	Total	Qty	Value	Qty	Value	Total	Qty	Value	Qty	Value	Total	Qty	Value	Qty	Value	Total				
Madhya Pradesh	18 (6)	529	12	-	-	-	-	-	-	541	271602	2250	-	1	-	-	-	-	-	2251	1177605	-	-	2792	1449207
Chhatarpur	1	21	12	-	-	-	-	-	-	33	13025	47	-	-	-	-	-	-	-	47	9555	-	-	79	22580
Gwalior	1	-	-	-	-	-	-	-	-	-	-	59	-	-	-	-	-	-	-	59	23560	-	-	59	23560
Jabalpur	15 (6)	501	-	-	-	-	-	-	-	501	248122	2144	-	1	-	-	-	-	-	2145	1144490	-	-	2647	1392612
Sagar	1	7	-	-	-	-	-	-	-	7	10455	-	-	-	-	-	-	-	-	-	-	-	-	7	10455
Maharashtra	11	143	28	95	17	-	-	-	-	283	509013	65	88	224	-	-	-	-	-	377	379784	-	-	660	888797
Chandrapur	1	-	7	-	-	-	-	-	-	7	14883	-	-	-	-	-	-	-	-	-	-	-	-	7	14883
Gadchiroli	1	105	-	63	-	-	-	-	-	168	320909	-	-	-	-	-	-	-	-	-	-	-	-	168	320909
Gondia	3	8	-	-	-	-	-	-	-	8	15310	3	-	-	-	-	-	-	-	3	1782	-	-	11	17092
Sindhudurg	6	30	21	32	17	-	-	-	-	100	157911	62	88	224	-	-	-	-	-	374	378002	-	-	474	535913
Odisha	63 (1)	595	696	2704	2786	23177	8241	38199	121668841	1159	1593	2692	13847	46433	8625	74349	126896759	507	979824	113055	249545424				
Keonjhar	37	292	163	937	312	17209	7621	26534	83021783	729	551	239	8391	33906	8535	52351	88965311	-	-	78885	171987094				
Mayurbhanj	2	35	97	633	-	129	112	1006	3539435	16	3	233	43	9	1	305	404180	-	-	1311	3943615				
Sundargarh	24 (1)	268	436	1134	2474	5839	508	10659	35107623	414	1039	2220	5413	12518	89	21693	37527268	507	979824	32859	73614715				
Rajasthan	8	155	-	-	-	-	-	155	45359	++	-	-	-	-	-	++	89	953	3563423	1108	3608871				
Bhilwara	2	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	953	3563423	953	3563423			
Jaipur	2	112	-	-	-	-	-	112	31808	-	-	-	-	-	-	-	-	-	-	-	-	112	31808		
Jhunjhunu	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Sikar	2	43	-	-	-	-	-	43	13551	++	-	-	-	-	-	++	89	-	-	-	-	43	13640		
Karauli	1*	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Telangana	(1)	2	-	-	-	-	-	2	1290	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1290	
Khammam	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	
Warangal	(1)	2	-	-	-	-	-	2	1290	-	-	-	-	-	-	-	-	-	-	-	-	-	2	1290	

++ Negligible,* Only labour reported, () : No. of mines reported as associated mineral.

**Table – 6 : Production of Iron Ore, 2017-18 and 2018-19
(By Frequency Groups)**

Production Group (In tonnes)	No. of mines		Production (In '000 tonnes)		Percentage in total production		Cumulative percentage	
	2017-18	2018-19 (P)	2017-18	2018-19 (P)	2017-18	2018-19 (P)	2017-18	2018-19 (P)
Total	304 (8)	254 (8)	201426	206446	100.00	100.00	-	-
Up to 50,000	163 (6)	139 (6)	809	605	0.40	0.29	0.40	0.29
50,001 - 100,000	22	12 (1)	1678	997	0.83	0.49	1.23	0.78
100,001 - 500,000	54 (2)	36 (1)	14033	9194	6.97	4.45	8.2	5.23
5,00,001 - 10,00,000	18	19	12945	14063	6.43	6.81	14.63	12.04
1,00,00,001 - 1,50,00,000	6	8	6954	9797	3.45	4.75	18.08	16.79
15,00,00,001 - 20,00,00,000	6	5	10308	8677	5.12	4.20	23.20	20.99
20,00,00,001 and above	35	35	154699	163113	76.80	79.01	100	100

() : No. of mines reported as associated mineral

Table-7 (A) : Mine-head Closing Stocks of Iron Ore, 2017-18
(By States/Grades)

(In '000 tonnes)

State	Lumps										Fines										Concentrates		Total Lumps, Fines & Concentrates					
	Below 55% Fe					60%-62% Fe					65% Fe & above					Below 55% Fe					60%-62% Fe					65% Fe & above		
	Below 55% Fe	55% below 58% Fe	58% below 60% Fe	60% below 62% Fe	Total	Below 55% Fe	55% below 60% Fe	60% below 62% Fe	62% below 65% Fe	Total	Below 55% Fe	55% below 60% Fe	60% below 62% Fe	62% below 65% Fe	Total	Below 55% Fe	55% below 60% Fe	60% below 62% Fe	62% below 65% Fe	Total	Below 55% Fe	55% below 60% Fe		60% below 62% Fe	62% below 65% Fe	Total		
India	7691	2036	1813	1774	22200	26470	52980	6441	24234	16494	3878	130497	257	152954														
Andhra Pradesh	625	14	-	++	639	684	-	-	1	-	-	685	-	1324														
Chhattisgarh	9	4	3	2	1586	341	128	43	381	472	1244	2609	-	4195														
Goa	522	297	112	++	932	1011	648	80	21	99	-	1859	21	2812														
Jharkhand	370	670	169	267	221	1105	36101	382	750	1344	439	40121	-	41949														
Karnataka	3841	336	354	463	847	1435	407	688	612	1485	26	4653	-	10608														
Madhya Pradesh	927	31	19	17	994	2993	-	4	-	-	-	2997	++	3991														
Maharashtra	124	21	++	5	150	502	47	5	-	-	-	554	-	704														
Odisha	1173	663	1156	1020	4658	18376	15649	5239	22469	13094	2169	76996	184	87196														
Rajasthan	100	-	-	-	100	23	-	-	-	-	-	23	52	175														
Telangana	++	-	-	-	++	-	-	-	-	-	-	-	-	++														

++ Negligible

Table – 7 (B) : Mine-head Closing Stocks of Iron Ore, 2018-19 (P)
(By States/Grades)

(In '000 tonnes)

State	Lumps						Fines						Total Lumps, Fines & Concentrates			
	Below 55% Fe	55% - 58% Fe	58% - 60% Fe	60% - 62% Fe	62% - 65% Fe	65% - Fe & above	Total	Below 55% Fe	55% - 58% Fe	58% - 60% Fe	60% - 62% Fe	62% - 65% Fe		65% - Fe & above	Total	
																Concentrates
India	8131	2122	1895	1854	8488	2736	25226	27217	54300	8585	25446	17331	4139	137018	398	162642
Andhra Pradesh	400	15	-	++	-	-	415	902	-	-	1	-	-	903	-	1318
Chhattisgarh	5	23	36	5	428	861	1358	374	104	8	327	1061	1285	3159	-	4517
Goa	413	231	24	++	1	-	669	732	340	10	13	++	-	1095	22	1786
Jharkhand	376	651	139	221	225	122	1734	1365	36424	356	567	2070	603	41385	-	43119
Karnataka	4413	471	239	632	896	115	6766	1566	600	2607	756	1446	63	7038	-	13804
Madhya Pradesh	844	14	15	17	-	-	890	2632	-	4	-	-	-	2636	++	3526
Maharashtra	78	39	++	2	++	-	119	39	62	3	-	-	-	104	-	223
Odisha	1452	678	1442	977	6938	1638	13125	19595	16770	5597	23782	12754	2188	80686	324	94135
Rajasthan	149	-	-	-	-	-	149	12	-	-	-	-	-	12	52	213
Telangana	1	-	-	-	-	-	1	-	-	-	-	-	-	-	-	1

++ Negligible

MINING, MARKETING & TRANSPORT

Iron ore mining is carried out by opencast method by manual, semi-mechanised and mechanised operations.

The method of mining and deployment of machinery vary from place to place depending upon characteristics of iron ore as per geological set up. Large mechanised mines are mostly in the Public Sector. Manual and semi-mechanised mines are mainly in Private Sector. Some mechanised mines in Goa, Jharkhand and Odisha are also operated by the Private Sector.

Manual Mines

Generally, these mines are confined to float ores where mining is done by digging the ore with pick axes, crow bars, chisels and spades. The mined material is screened manually to separate +10 mm float ore which is then stacked separately. The waste is backfilled into the pits. In some reef workings, 35-40 mm diameter holes are drilled to 0.6 m depth by hand-held jackhammers at a spacing of about 0.6 m and each hole is charged with 150-200 g gunpowder or special gelatine cartridges. Blasted tonnage per kg gunpowder is usually 2.5-3 tonnes. Blasted ore is manually loaded into trucks for transport to either railway sidings or to buyer's destination directly.

Mechanised Mines

Most of the mechanised mines are captive belongings of different steel plants and have been developed to cater to specific requirements. Mining is done by formation of systematic benches in overburden and ore. The height of the benches normally varies from 10 to 12 m and width upto 20 m in the ore. Drilling holes of 300 mm diameter and till 12 m depth by crawler drills and use of explosives, such as, ANFO, SMS and emulsion explosives for blasting are in practice. Loading is done by earth-moving machinery powered by diesel or electric engines, such as, hydraulic excavators in the range from 1.9 cu m to 10 cu m. Ripper dozers and motor graders are also deployed for excavation and levelling purposes.

In some Goa mines, where ore is predominantly in powdery form, hydraulic shovels with boom height of 9 m are used for excavation and loading. Heavy-duty Ripper-Dozers are preferred for mining as the ores are soft. Height of the benches is restricted to 7 m for safe and efficient operations. Width of working benches is maintained at more than 15 m and bench slope is maintained at about 80°. The ore produced is transported to short distances by dumpers upto 40 tonnes capacity. For longer distances and barge loading, dumpers/trucks up to 10 tonnes capacity are used. The barges carry the ore to harbours. The ore from the barges is loaded on to ships either through berth or through transshippers.

Almost all the Public Sector mines including Kiriburu, Barsua, Gua, Bailadila, Donimalai, Daitari and Dalli-Rajhara operated by SAIL, NMDC and OMC are fully mechanised. Kudremukh iron ore mine of KIOCL was closed since December 2005 which was also mechanised. In Private Sector, mines operated in Goa region and Tata Steel's captive mines are mechanised. Approximately, 90% iron ore production comes from mechanised mines. NMDC operates a couple of large mechanised iron ore mines in the country at Bailadila (Chhattisgarh) and Donimalai (Karnataka). The Company has three highly-mechanised iron ore mine complexes. Two are located in Chhattisgarh and one in Karnataka.

The processing of iron ore in the country involves crushing, screening, washing and in some cases beneficiation and agglomeration. Crushing and screening are adopted mainly for sizing the ore and also for removing the adherent gangue minerals. Dry and wet grinding is also resorted to in some cases.

The lumps and fines of iron ore are marketed after screening and beneficiation. Fines are converted into sinters for use in steel plants while pellets made from concentrates/fines are exported and also are utilised for internal consumption in domestic iron & steel industries.

ENVIRONMENTAL FACTORS

Afforestation, waste dump management, top soil management, management of sub-grade minerals, mechanical beneficiation, dust suppression, monitoring of water & air quality, vibration survey, publicity and propaganda are some common environmental restoration efforts pursued by all mechanised and semi-mechanised iron ore mines. Mining and beneficiation of ores carried out on large-scale cause environmental problems. A specific problem in iron ore mining is the disposal of tailings and other deleterious silica minerals and phosphorous. To safeguard the environment and prevent ecological degradation, thrust has been laid on green belt development, solid waste management, monitoring of liquid & air effluents and other crucial environmental parameters.

Goa region is prone to siltation of agricultural fields, nallahs, riverbeds and creeks due to wash off from iron ore dumps in rainy season. Loss in crop yield and reduction in fish population in streams and navigation difficulties are the problems caused by silting. To overcome these problems, check dams and water filter beds at higher contours have been constructed. Tailing ponds are also being maintained at some mines. Afforestation is the mainstay in reclaiming the mined out areas in Goa. In a few cases, pits are used as water reservoir for pisciculture.

In Ballari-Hosapete area, Karnataka, dust concentration (suspended particulate matter) is the main environmental problem. Environmental concerns had led to closing down of mining operations at Kudremukh iron ore mine of KIOCL in December 2005 in compliance with the order passed by the Hon'ble Supreme Court in this regard. In Bailadila Sector, Chhattisgarh, forest is fairly widespread and dense, supported by good rainfall and rich flora and fauna. The deforestation taking place due to mining and waste dumping needs to be compensated continuously by afforestation at suitable slopes and in township areas. In Jharkhand, afforestation of land is the

main recourse adopted for reclamation of degraded lands or improvement in land uses.

INDUSTRY

Iron ore is the basic raw material used for making pig iron, sponge iron and finished steel. The iron ore is used mainly in blast furnaces, mini-blast furnaces (MBF), DRI & sintering and pelletisation plants.

Pelletisation

In general, the pelletisation process involves mixing of iron ore and required limestone with water which later is ground in ball mills to the desired size. The discharged slurry from ball mills is filtered in pressure filters. The filter cake from filters is then mixed with dry-ground coke fines to which bentonite is mixed in suitable proportion to form green pellets in pelletising discs. The coke fines and bentonite are ground separately. The green pellets are then dried, heated and fired in indurating machine to produce iron ore pellets. There is an increasing trend for utilisation of pellets or sinters in the recent years. The use of pellets as feed in the blast furnace has several advantages because of their uniform size, known composition and strength. Iron ore pellet is a kind of agglomerated fines which has better tumbling index as compared to that of parent ore and can be used as a substitute used in blast furnaces in countries where lump ore is not available.

The twenty-five pelletisation plants in the country about which information is available, have a total capacity of 66.670 million tonnes per annum. The JSW Steel Ltd has a manufacturing capacity of 9.2 million tonnes of pellets annually at Vijayanagar. Amba River Coke Limited a wholly subsidiary Company of JSW Steel has set up a 4 million tpy pellet plant at Dolvi and has produced 4.02 million tonnes of pellet during the FY 2018-19. The pellets produced are primarily supplied to the Dolvi unit of the company. With a view to reduce its dependency on the expensive lump iron ore, the Company has decided to set up an 8 MTPA pellet plant at Vijayanagar.

With a strong belief in prudent forward and backward integrations, JSPL established India's largest 9 MTPA Pelletisation Complex at Barbil, Odisha. The plant includes dry grinding facility that harnesses recuperation type of straight grate technology.

Essar Steel has built an 8 MTPA iron ore pellet plant in Visakhapatnam, Andhra Pradesh to cater to the pellet requirements of the HBI plant in Hazira, Gujarat. The plant has an assured supply of high-quality iron ore from the beneficiation plant at Bailadilla, Chhattisgarh. The plant is capable of producing both DR and BF grade pellets and is linked to the Visakhapatnam port through conveyors to enable easy material movement in and out of the plant. The plant is located strategically near a deep draft, all-weather port that ensures the movement of large vessels to supply pellets throughout the year to the Hazira steel-making facility.

A 6 million tpy pellet plant is located at Paradip in the iron ore-rich State of Odisha. The plant has an assured supply of high-quality iron ore from the beneficiation plant at Dabuna, Odisha. The Paradip Pellet plant may add another 6 million tpy to its capacity which is under construction. After completion of this plant Essar's total pelletisation capacity at Paradip would get augmented to 12 million tpy.

NMDC is setting up a 3.0 MTPA Greenfield Integrated Steel Plant at Nagarnar, Bastar District in Chhattisgarh. Construction work for the project is in progress and about 93% of civil work, 90% structural erection, 76% equipment erection have been completed as on 31.3.2019.

NMDC has been expanding its business through forward integration in both Greenfield and Brownfield through the following projects :

1) A pellet plant with capacity of 1.2 MTPA at Donimalai in Karnataka is already commissioned.

2) Developing a 2.0 MTPA Pellet Plant at Nagarnar along with 2.0 MTPA Ore Processing Plant at Bacheli interconnected by a Slurry Pipeline System between Bacheli and Nagarnar in Chhattisgarh.

KIOCL is currently engaged in the business of manufacturing and selling of iron ore pellets. The state-of-the-art pelletisation plant with

3.5 million tpy rated capacity and 0.216 million tpy Blast Furnace Unit is located at Mangaluru. During the year 2018-19, KIOCL Ltd surpassed the assigned excellent category MoU target of 2.170 million tonnes and achieved cumulative production of 2.238 million tonnes of pellets which represents 103% of the target.

Steel plants are likely to increase usage of pellets in their production process to reduce pollution and increase productivity. Moreover, the forecast of spike in growth in Infrastructure, Real Estate and Automobile Sectors in the ensuing years are expected to augment demand for steel, which in turn would raise the demand and prices of pellets in the near future.

Sintering

In sintering process, iron ore fines, other iron-bearing wastes and coke dust are blended and combusted. The heat fuses the fines into course lumps that can be charged to a blast furnace. There are about thirty-six sintering plants in the country about which information is available and have a total capacity of about 93.38 million tonnes per annum. Most of the Integrated Steel Plants (ISP) in the country have their own sintering plants. Sinter plants receive raw material mostly from their captive mines. Information on capacity and production of pellets and sintering plants is provided in Table-8.

Pig Iron

Pig iron is one of the basic raw materials required by Foundry and Casting Industry for manufacturing various types of castings for the engineering section. The post-liberalisation regime has witnessed Expression of Interest from a large number of entrepreneurs for setting up mini-blast furnaces for production of hot metal/pig iron. Commissioned pig iron units are mostly of stand-alone type.

The production for sale of pig iron has increased from 1.6 million tonnes in 1991-92 to 6.414 million tonnes in 2018-19. The Private Sector accounted for 90.83% of total production of pig iron in the country in 2018-19. As per National Steel Policy 2017, the demand for pig iron for merchant use, such as, for castings and supplementary metallic in the electric arc or induction furnaces is projected to increase to 17 million tonnes by 2030-31.

Sponge Iron

India is the world's largest producer of sponge iron or Direct Induced Iron (DRI) with a host of coal-based units located in the mineral-rich States of the country. Over the years, the coal-based route has emerged as a key contributor and accounted for 79% of the total sponge iron production in the country. The growth of Sponge Iron Industry during the last few years in terms of capacity has been substantial. The installed capacity of sponge iron increased from 1.52 million tonnes per annum in 1990-91 to around 46.56 million tonnes in 2018-19. Production has increased from 0.9 million tonnes in 1990-91 to 34.705 million tonnes in 2018-19. As per National Steel Policy 2017, the demand for sponge iron is projected to increase to 80 million tonnes by 2030-31. It is projected that the sponge iron capacity may increase to 114 million tonnes by 2030-31 with around 30% share of gas-based capacities under increased environmental considerations and long-term availability of gas.

Sponge iron is a good substitute for scrap which is required by the electric arc furnaces and induction furnaces or mini-steel plants in the country. The availability of indigenous metal scrap is scarce and therefore to meet the domestic demand, scrap is usually imported. Sponge iron is a viable alternative for scrap and is produced by direct reduction of high-grade iron ore or pellets to metallic iron ore in solid state by using coal or natural gas as reductant. It is also known as Direct Reduced Iron (DRI) or Hot Briquetted Iron (HBI).

Iron & Steel

The details of the Iron & Steel Industry are provided in the Review on "Iron, Steel & Scrap and Slag".

Ferroalloys

Iron is an important constituent of ferro-alloys, like ferromanganese (high carbon, medium carbon and low carbon), ferrosilicon, ferrochrome (high carbon and low carbon)/charge chrome, ferro molybdenum, ferrovandium, ferrotungsten, ferro-silicon-magnesium, ferroaluminium, ferro-

silicon-zirconium, ferrotitanium, etc. Ferro-alloys in turn are either used in Steel Industries to impart some special qualities or are exported. The details about the Ferroalloys Industry are provided in the Review on 'Ferroalloys'.

Cement

Iron ore lumps and powder containing +58% Fe are normally used in the Cement Industry as they improve burning properties, impart colour and balance the composition of the mix. Further details about the Cement Industry are provided in the Review on 'Cement'.

Coal Washeries

Magnetite ore is used as heavy media in coal washeries. As per the information available in Energy Statistics 2018, there are 18 washeries for coking coal and 34 washeries for non-coking coal with 28.78 million tpy and 98.78 million tpy installed capacity, respectively. Details on coal washeries are provided in the Review on 'Coal & Lignite'.

USES & SPECIFICATIONS

Iron ore is mainly used for manufacturing pig iron, sponge iron and steel. It is also used in Cement, Coal Washeries, Ferro-alloys, Foundry, Vanaspati and Glass Industries. The specifications of iron ore consumed by major sponge iron plants are furnished in Table-9 and by major steel plants in Table-10.

CONSUMPTION

In 2018-19, about 159.94 million tonnes iron ore that were consumed in various industries like Iron & Steel, Sponge Iron, Ferro alloys, Alloy-steel and Cement were slightly higher than 159.58 million tonnes consumed in the preceding year. Iron & Steel including pelletisation (90.46%) and Sponge Iron industries (8.92%) were the major consumers of iron ore and accounted together for over 99.38 % of the consumption. Plantwise consumption of iron ore in steel plants has been furnished in Table-10 and industrywise consumption of iron ore from 2016-17 to 2018-19 has been provided in Table-11.

**Table – 8 : Installed Capacity & Production of Pellets and Sinters, 2017-18 & 2018-19
(By Plants)**

(In '000 tonnes)

Name & location of plant	Annual installed capacity	Production		Iron ore fines consumed	
		2017-18	2018-19 (P)	2017-18	2018-19 (P)
A) Pellet Plants					
1. Amba River Coke Ltd, (A wholly owned subsidiary co. of JSW Steel Ltd), Raigad, Maharashtra	4000	NA	NA	4535	2894
2. Ardent Steel Ltd, Phulj Keonjhar, Odisha	600	NA	NA	408	NA
3. Arya Iron and Steel Company (AISCO) Barbil, Odisha	1200	912	803	NA	NA
4. BMM Ispat, Karnataka	2400	1060	1697	1449	2244
5. Essar Steel Ltd, Visakhapatnam, Andhra Pradesh	8000	NA	NA	NA	NA
6. Essar Steel Ltd, Paradip Port, Odisha.	6000	NA	NA	NA	NA
7. Godawari Power & Ispat Ltd Siltara, Chhattisgarh	2100	NA	NA	1818	1818
8. KIOCL Ltd, Panambur, Mangaluru, Karnataka	3500	NA	22380	NA	NA
9. Jindal Steel & Power Ltd, Barbil, Odisha	9000	NA	NA	NA	NA
10. Jindal Saw Ltd, Bhilwara, Rajasthan	1200	-	-	380	375
11. JSW Steel Ltd, Vijaynagar Works, Vidyanagar, Toranagally, Ballari, Karnataka	9200	7140	7870	18210	14052
12. Jayaswal Neco Industries Ltd, Siltara, Raipur, Chhattisgarh	1200	-	-	1603	1834
13. Mandovi Pellets Ltd, Near Borim Bridge, Shiroda, Goa – 403 103	1800	NA	NA	NA	NA
14. Minera Steel & power Private Ltd, Ballari, Karnataka	600	598	543	656	597
15. MSP Steel & Power Ltd, Raigarh, Chhattisgarh	900	NA	NA	NA	NA

(Contd)

(In '000 tonnes)

Table-8 (Contd)

Name & location of plant	Annual installed capacity	Production		Iron ore fines consumed	
		2017-18	2018-19 (P)	2017-18	2018-19 (P)
16. Orissa Metalics Private Ltd, Paschim Mednapore, West Bengal	1370	1174	1328	1813	2195
17. Orissa Manganese & Minerals Limited (OMML), Kandra Saraikela Kharsawan, Jharkhand	1200	NA	NA	NA	NA
18. Rashmi Metaliks Ltd, Shyamraipur, Gokulpur, West Midnapore, West Bengal	900	NA	NA	NA	NA
19. Rexion Strips Ltd, Kumakela, Lathikata Rourkela, Sundargarh, Odisha	300	NA	NA	NA	NA
20. Sarda Energy and Minerals Ltd, Siltara, Raipur, Chhattisgarh	600	600	600	559	754
21. Shri Bajarang Power & Ispat Ltd, Borjhara, Tilda & Gondwara, Raipur, Chhattisgarh	1400	995	1049	1060	NA
22. Tata Steel Limited, Jamshedpur	6000	NA	NA	NA	NA
23. Usha Martin Ltd, Usha Alloy & Steel, Division, Jamshedpur	1200	367	360	2118	2311
24. Xindia Steels Ltd, Kunikere & Hirebaganal Ginigera, Koppal, Karnataka	800	NA	NA	NA	NA
25. Monnet Ispat and Energy	1200	-	-	-	-
B) Sintering Plant					
1. Bokaro Steel Plant, Jharkhand	6900	5606	5870	4058	4264
2. Bhilai Steel Plant, Bhilai, Durg, Chhattisgarh.	6334	6505	6918	4424	4748
3. Bhushan Power & Steel Ltd, Sambalpur, Odisha	6680	4980	4951	5560	5572
4. Durgapur Steel Plant, West Bengal	3009	3155	3373	2408	2622
5. Gerdau Steel India Ltd, Tadipatri, Anantpur, A.P.	470	NA	NA	NA	NA
6. IISCO Steel Plant, SAIL Burnpur, West Bengal	3880	3243	3277	3477	3834

(Contd)

IRON ORE

Table-8 (Contd)

(In '000 tonnes)

Name & location of plant	Annual installed capacity	Production		Iron ore fines consumed	
		2017-18	2018-19 (P)	2017-18	2018-19 (P)
7. Jayaswal Necco Industries Ltd, Siltara Growth Centre, Raipur-493 221, Chhattisgarh	792	NA	NA	NA	NA
8. Jindal Steel & Power Ltd, Raigarh, Chhattisgarh	2300	NA	NA	NA	NA
9. Jindal Saw Ltd, Mundra, Gujarat	900	NA	NA	NA	NA
10. JSW Steel Ltd, Vijaynagar works, Vidyanagar -583 175, Tornagallu, Ballari, Karnataka	12950	13858	1400	NA	NA
11. JSW Ispat Steel Ltd, Dolvi, Raigad, Maharashtra 402 107	2800	NA	NA	NA	NA
12. JSW Steel Ltd Salem works, Pottaneri, Salem, Tamil Nadu	1180	1208	1329	1186	1180
13. Kalyani Steel Ltd, M/s Hospet Steels Ltd, Ginigera, Koppal, Karnataka	500	260	235	103	101
14. Kirloskar Ferrous Industries Ltd, Bevinahalli, Hitnal, Karnataka.	500	500	500	292	394
15. KIC Metaliks Ltd, Raturia, Angadpur, Durgapur. West Bengal	336	174	179	305	142
16. Mukund Ltd, M/s Hospet Steel Ltd, Ginigera, Koppal, Karnataka	500	369	332	183	130
17. Neelachal Ispat Nigam Ltd, Kalinga Nagar, Industrial Complex, Duburi-755 026, Distt Jajpur, Odisha.	1710	621	1186	540	1085
18. Rashmi Metaliks Ltd, Shyamraipur, Gokulpur, West Midnapore, West Bengal.	600	233	508	1364	1600
19. RINL, Visakhapatnam Steel Plant No. -1& 2 , Visakhapatnam, Andhra Pradesh	5256	NA	NA	NA	NA

(Contd)

Table-8 (Concl'd)

(In '000 tonnes)

Name & location of plant	Annual installed capacity	Production		Iron ore fines consumed	
		2017-18	2018-19 (P)	2017-18	2018-19 (P)
20. RINL, Visakhapatnam Steel Plant No. -3, Andhra Pradesh	3600	NA	NA	4419	5317
21. Rourkela Steel Plant, Odisha	5300	5306	6310	5276	6249
22. SBQ Steel Ltd, Gudur, Nellore, Andhra Pradesh	240	-	-	-	-
23. SLR Metaliks Ltd, Ballari, Karnataka	343	-	-	-	-
24. Sesa Goa Ltd, Vedanta Ltd, North Goa	1000	NA	NA	NA	NA
25. Sunflag Iron and Steel Co. Ltd, Bhandara, Nagpur, Maharashtra	250	365	312	NA	NA
26. Tata Steel Ltd, Jamshedpur, Jharkhand	8000	8282	8179	14139	13852
27. Tata Metaliks Ltd, Kharagpur, West Bengal	528	NA	NA	475	542
28. Usha Martin Ltd (Usha Alloys and Steel Division), Jamshedpur.	715	NA	NA	NA	NA
29. Tata Steel Ltd, Kalinganagar, Odisha	5750	4301	49944	4250	4942
30. Uttam Galva, Metalics Ltd, Wardha, Maharashtra	887	667	623	536	536
31. JSW Steel Ltd, Dolvi Works	5400	3880	4160	3820	3180
32. Neometaliks Ltd, Gopalpur, Durgapur, West Begal	300	266	266	166	180
33. Jai Balaji Industries, Banskopa, West Bengal	608	395	513	532	546
34. Vedanata Ltd. Amona, Goa	1000	-	-	-	-
35. Jindal Saw Ltd. Mundra, Gujarat	900	720	747	266	262
36. Monnet Ispat and Energy	962	-	-	-	-

Table - 9 : Specifications of Iron Ore Consumed by Major Sponge Iron Plants

Sl. No.	Name of the Plant	Specifications				
		Size	Fe	Al ₂ O ₃ + SiO ₂	P	S
1.	Orissa Sponge Iron Plant	5-18 mm	65% min.	4.5% max.	0.03% max.	N. A.
2.	Welspun Max Steel Ltd	9-16 mm	66%	2.6% max.	0.05%	0.01%
3.	Sunflag Iron & Steel Ltd	5-20 mm	67.5%	-	-	-
4.	NMDC Ltd (Sponge iron unit)	6-20 mm	55-58% & 64-66%	-	-	-
5.	Essar Steel Ltd	10-40 mm	67%	2.60% max.	0.05%	0.01%
6.	Jindal Steel & Power Ltd	10-30 mm	65% min.	3% max. (SiO ₂)	0.05%	-
7.	Tata Sponge Iron Ltd	5-18 mm	65% min.	5% max.	-	-
8.	Steel Exchange India Ltd	10-40 mm	62%	-	-	-
9.	Sarda Energy & Minerals Ltd	5-18 mm	65-66%	-	-	-
10.	OCL Iron & Steel Ltd	Sized	62% min.	-	-	-
11.	Nalwa Steel & Power Ltd	5-20 mm	63% min.	-	-	-
12.	Shri Bajrang Power & Ispat Ltd	5-18 mm	64% min.	-	-	-
13.	Jai Balaji Industries Ltd	5-18 mm	65%	5%	0.05%	0.03%
		10-30 mm	-	-	-	-
		10-150 mm	-	-	-	-

**Table – 10 : Consumption and Specifications of Iron Ore, 2017-18 and 2018-19
(By Steel Plants)**

(In '000 tonnes)

Steel plant	Iron ore consumption				Specifications
	2017-18		2018-19 (P)		
	Lumps	Fines	Lumps	Fines	
Bokaro Steel Plant, Bokaro, Jharkhand	1946	4058	2487	4264	Lumps: Fe-63.40%, SiO ₂ :2.25%, Al ₂ O ₃ 2.39%, Size: 10-40 mm Fines: Fe - 62.24%, SiO ₂ - 3.36%, Al ₂ O ₃ - 3.45%
Durgapur Steel Plant, Durgapur, West Bengal	1363	2408	1483	2622	Lumps : Fe - 62.48%, Al ₂ O ₃ - 2.42%, Size: 10-50 mm Fines: Fe - 62.8%, SiO ₂ - 2.28%, Size : -10 mm
IISCO Steel Plant, Burnpur, West Bengal	689	2545	710	2766	Lumps: Fe - 62.86%, SiO ₂ - 2.56%, Al ₂ O ₃ - 2.56% (max.), Size: 10-40 mm
Bhilai Steel Plant, Chhattisgarh	2414	4922	2629	4424	-
Rourkela Steel Plant SAIL, Rourkela, Odisha	2460	3117	2428	5306	-

(Contd)

Table-10 (Concl'd)

(In '000 tonnes)

Steel plant	Iron ore consumption				Specifications
	2017-18		2018-19 (P)		
	Lumps	Fines	Lumps	Fines	
Tata Metaliks Ltd, Medinipur, Kharagpur West Bengal	315	475	338	542	-
Tata Steel Limited, Jamshedpur	3152	17054	3207	17345	-
JSW Steel Ltd. Ballary, Karnataka	5831	15444	4375	18210	-
Mukund Ltd, M/s Hospet Steel Ltd, Ginigera, Koppal, Karnataka	346	154	345	182	-
JSW Steel Ltd Salem works, Raigad, Maharashtra	1003	2861	1003	4156	-
Kalyani Steel Ltd, M/s Hospet Steels Ltd., Ginigera, Koppal, Karnataka	318	1090	247	1029	-

**Table 11 - Estimated Consumption* of Iron Ore[®] 2016-17 to 2018-19
(By Industries)**

(In tonnes)

Industry	2016-17 (R)	2017-18 (R)	2018-19 (P)
All Industries	150216000	159575800	159942400
Cement	868900	826400	973200
Iron & steel **	135580900	144129900	144689000
Sponge iron	13730300	14603200	14261300
Others (electrode,foundry, paint, chemical & refractory)	35900	16300	18900

Figures rounded off

**Includes actual reported consumption and/or estimates made wherever required.*

@Does not include consumption of pellets & sinters; includes consumption of iron ore (fines) consumed in the production of pellets & sinters.

*** including pelletisation, Alloy steel & Ferro alloys.*

TRADE POLICY

To ensure easy availability of raw material in domestic market at reasonable prices, export duty on iron ore is @ 30% for both lumps and fines varieties of 58% Fe content and above. The export duty is @ 0% for both lumps and fines varieties of iron ore less than 58% Fe content. The export duty on iron ore pellets is NIL. Export duty on iron ore originated from NMDC is @ 10% when

exported by MMTC Ltd under LTA to Japan and South Korea.

As per the Foreign Trade Policy (FTP) for 2015-20 and the amended Export and Import Policy incorporated in the FTP, the present export policy for iron ore as construed is furnished below in brief. As per the policy, imports of iron ore lumps, fines, concentrates and agglomerated pellets are freely allowed.

HS Code	Item	Export Policy
2601	Iron ore and concentrates, including roasted iron pyrites	Free
260111	Iron ore and concentrates, other than roasted iron pyrites: Non-agglomerated	Free
26011111	60% Fe or more but below 62% Fe	Free
26011112	62% Fe or more but below 65% Fe	Free
26011119	65% Fe and above	Free
26011121	Iron ore lumps (below 60% Fe, including black iron ore containing up to 10 % Mn)-Iron Ore lumps below 55% Fe	Free
26011122	Iron ore lumps (below 60% Fe, including black iron ore containing up to 10 % Mn) - Iron Ore lumps 55% Fe or more but below 58% Fe	Free
26011129	Iron ore lumps (below 60% Fe, including black iron ore containing up to 10 % Mn) - Iron Ore lumps 58% Fe or more but below 60% Fe	Free
26011131	Iron ore fines (62% Fe or more) - 62% Fe or more but below 65% Fe	Free
26011139	Iron ore fines (below 62% Fe or more)- 65% Fe and above	Free
26011141	Iron ore fines (below 62% Fe) - below 55% Fe	Free
26011142	Iron ore fines (below 62% Fe) - 55% Fe or more but below 58% Fe	Free
26011143	Iron ore fines (below 62% Fe) - 58% Fe or more but below 60% Fe	Free
26011149	Iron ore fines (below 62% Fe) - 60% Fe or more but below 62% Fe	Free
26011150	Iron ore concentrates	Free
26011190	Others	
260112	Iron ore and concentrates other than roasted iron pyrites: Agglomerated	Free
26011210	Iron ore pellets	Free
26011290	Other	Free
26012000	Roasted iron pyrites	Free

Source: ITC(HS), 2018, Schedule 2 Export Policy ; STE: State Trading Enterprise

WORLD REVIEW

The world reserves of crude iron ore are estimated to be around 170 billion tonnes. In terms of iron content, the iron ore reserves are estimated to be around 81 billion tonnes. The world reserves of crude iron ore and iron content by principal countries are furnished in Table - 12.

In 2018, the world production of iron ore was 2,923 million tonnes as against 3,360 million tonnes in the previous year. Australia (30.83%),

China (26.12%), Brazil (15.74%), India (7%), Russia (3.28%), Iran (2.57%), South Africa (2.54%) and Ukraine (2.07%) were the principal producers. These five countries accounted for about 90% of the world production of iron ore. The world production of iron ore is provided in Table-13.

To provide a generalised view of the development in various countries, country-wise description sourced from the latest available publication of Minerals Year book 'USGS' 2017 is furnished below.

Australia

Production of usable iron ore in Australia was 883Mt in 2017, 3.0% more than the 858 million tonnes produced in 2016. On a tonnage basis, iron ore production in Australia increased by 25 million tonnes in 2017, 48 million tonnes in 2016, 70 million tonnes in 2015, and 130 million tonnes in 2014. Three iron-ore-mining companies in Australia—BHP Billiton Ltd, Fortescue Metals Group Ltd, and Rio Tinto Ltd—were among the four leading iron ore producers in the world and accounted for most of the iron ore produced in Australia.

BHP Billiton’s iron ore production in Australia in fiscal year (FY) 2017, which ended June 30, increased by 2% to 231 million tonnes from 227 million tonnes in FY 2016. Increased output was a result of strong productivity throughout the company’s supply chain and additional capacity at the Jimblebar Mine in the Pilbara region in Western Australia. BHP Billiton’s annual realised sales price increased to \$58 per wet metric ton, up from \$44 per wet metric ton in 2016. Fortescue’s iron ore shipments increased slightly in FY 2017 to 170 million tonnes, from 167 million tonnes in FY 2016. The company was exploring replacement options for the Firetail Mine, which was expected to be depleted within a few years. Rio Tinto’s share of iron ore production at its operations in Australia was virtually unchanged in 2017 at 271 million tonnes. The Silvergrass Mine commenced operations in 2017, marking the company’s 16th iron ore mine in the Pilbara region of Western Australia. The new mine produces low-phosphorous iron ore intended for product blending. Rio Tinto continued resource development projects to replenish ore reserves following mine depletion and further development operations at Yandi Oxbow, West Angelas Deposit F, and Yandi Billard South.

Brazil

Production of iron ore in Brazil was estimated to be 425 million tonnes in 2017 about the same as that in 2016. Vale S.A., the leading iron ore producer in Brazil, increased production in 2017 to 367 million tonnes from 349 million tonnes in 2016 and increased its pellet production in 2017 to 50.3 million tonnes from 46.2 million tonnes in 2016. In November 2015, the Fundão tailings dam experienced a catastrophic failure at the 30.5 million tonnes/yr Samarco Mine in Minas Gerais, jointly owned by BHP Billiton and Vale. Despite earlier plans to reopen the mine, in 2017 the company announced operations would remain suspended, and no information was provided on when it would reopen.

China

Production in China increased by 4% in 2017 to an estimated 360 million tonnes from 348 million tonnes in 2016. Increasing demand from steel producers in China for high-grade iron ore blends, primarily originating in Australia and Brazil, were driven by stricter emissions requirements from the Government of China for steel producers. Production of steel in China reached nearly 900 million tonnes, as reported by Rio Tinto, supported by strong demand in construction, infrastructure, and manufacturing. Despite higher production levels, exports of steel decreased to approximately 75 million tonnes in 2017, a decrease from more than 100 million tonnes in 2015 and 2016.

**Table – 12 : World Reserves of Iron Ore
(By Principal Countries)**

(In million tonnes)

Country	Reserves	
	Crude ore	Iron content
World : Total (rounded off)	170000	81000
Australia ^(a)	48000	23000
Brazil	29000	15000
Canada	6000	2300
Chile	NA	NA
China	20000	6900
India*	5500	3400
Iran	2700	1500
Kazakhstan	2500	900
Mexico	NA	NA
Peru	NA	NA
Russia	25000	14000
South Africa	1100	690
Sweden	1300	600
Ukraine ^(b)	6500	2300
USA	3000	1000
Other countries	18000	9500

Source: USGS, Mineral Commodity Summaries, 2020.

(a) : For Australia Joint Ore Reserves Committee compliant reserves were about 24 billion tonnes for crude ore and 11 billion tonnes for iron content.

(b): For Ukraine, reserves consist of the A+B categories of the Soviet reserves classification system.

* As per UNFC system as on 1.4.2015, India's reserves/resources of Iron ore (Haematite) and Iron ore (Magnetite) were estimated at 22,487 million tonnes and 10,789 million tonnes respectively.

**Table – 13 : World Production of Iron Ore
(By Principal Countries)**

(In million tonnes)			
Country	2016	2017	2018 (P)
World : Total (rounded off)	3320	3360	2923
Australia	858	885	901
Brazil	424	454	460
Canada ^(a)	49	52	54
Chile	15	15	14
China	1281	1229	763
India ^{(b)*}	195	201	205 ^(e)
Iran ^(c)	65	76	75 ^(e)
Kazakhstan	36	39	42
Liberia	1	2	5
Mauritania	13	12	11
Mexico	18	18	21
Mongolia	5	8	6
Peru	8	9	10
Russia	101	95	96
South Africa ^(d)	66	75	74
Sweden	32	32	36
Turkey	7	10	10 ^e
Ukraine	63	61	61
USA ^{(a)(f)}	42	48	49
Vietnam	3	5	5
Other countries	38	36	25

Source: BGS World Mineral Production, 2014-2018.

Note : World Total may not tally as data has been rounded off

(a) Including by-product iron ore.

(b) Years ended 31st March following that stated

(c) Years ended 20th March following that stated

(d) Including by-product magnetite; (e) estimated

(f) Including beneficiated and direct shipping ore

** India's production of iron ore in 2016-17, 2017-18 and 2018-19 was 194.58 million tonnes, 201.43 million tonnes and 206.45 million tonnes respectively*

FOREIGN TRADE

Exports

Exports of iron ore decreased drastically by 33% to 16.15 million tonnes in 2018-19 from 24.20 million tonnes in the previous year. In terms of value, the iron ore exports decreased slightly by 2% to ` 9,263 crore in 2018-19 from ` 9,49,0 crore in 2017-18. The total exports of iron ore in 2018-19 in terms of volume comprised iron ore fines (36%), iron ore pellets (58%), iron ore lumps (5%) and negligible quantity of iron ore non-agglomerated concentrate and iron ore pyrites. Exports were mainly to China (75%), Japan & Rep. of Korea (7% each) and UK, Malaysia & Oman (2% each) and the remaining 5% of the exports was to Vietnam, Dem. P. Rep of Korea, Indonesia and South Africa, etc.(Tables- 14 to 19).

Imports

Unlike Exports, Imports of iron ore increased sharply by 47 % to 12.81 million tonnes in 2018-19 from 8.71 million tonnes in the previous year. In terms of value, the iron ore imports increased drastically by 40% to ` 5,914 crore in 2018-19 from ` 4,229 crore in preceding year. Imports of iron ore were from Australia (56%), South Africa (21%), Brazil (15%), Bahrain (5%), Oman (2%), Canada (1%) and negligible amount to other countries. The total imports in 2018-19 comprised iron ore fines (66%), lumps (25%), iron ore pellets (5%), non-agglomerated concentrates (4%) and negligible quantity of iron ore pyrites (Tables-20 to 25).

**Table – 14 : Exports of Iron Ore : Total
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty ('000 t)	Value (` '000)	Qty ('000 t)	Value (` '000)
All Countries	24203	94901382	16150	92626091
China	18603	70391182	12103	67037592
Korea, Rep. of	1125	5809245	1055	7438133
Japan	2890	12242234	1160	6053842
UK	60	288464	372	2687972
Oman	388	2277724	253	1745800
Malaysia	218	616087	344	1573321
Vietnam	259	1255169	159	1074962
Korea, D.P.Rep.	76	302007	109	887189
South Africa	-	1	100	775048
Indonesia	273	718619	108	745774
Other countries	312	1000651	388	2606460

Figures rounded off

**Table – 15: Exports of Iron Ore : Lumps
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	1516	4402466	831	3138921
Japan	440	2136449	430	2503803
China	962	2140694	378	601455
Malaysia	79	104739	22	31895
Nepal	2	2485	1	1769
Singapore	33	17807	-	-
Philippines	++	284	-	-
Finland	++	9	-	-

*Figures rounded off***Table – 16: Exports of Iron Ore: Fines
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	13100	32582235	5905	16112897
China	9889	21333765	4763	12154206
Japan	2055	7495395	565	2129168
Korea, Rep. of	595	2523488	301	1287769
Malaysia	86	144553	163	397264
Nepal	40	53908	75	98194
Oman	-	-	39	46296
Indonesia	221	371061	-	-
Kenya	45	71966	-	-
Korea, D.P.Rep.	76	302007	-	-
Singapore	40	227895	-	-
Other countries	53	58197	-	-

*Figures rounded off***Table – 17 : Exports of Iron Ore: Pyrites
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	1	25395	1	28634
UAE	++	2634	++	6684
Netherlands	++	6291	++	5772
Bangladesh	++	1890	++	5097
Italy	++	1209	++	2967
Saudi Arabia	++	1647	++	2862
Japan	++	6575	++	791
Indonesia	-	-	++	790
Ghana	-	-	++	735
Egypt	++	209	++	567
China	++	432	++	509
Other countries	++	4509	++	1858

Figures rounded off

**Table – 18: Exports of Iron Ore: Concentrates
Non-agglomerated
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	276	924664	49	167775
China	205	562796	48	166308
Nepal	6	10668	1	1117
Indonesia	-	-	++	251
Nigeria	-	-	++	33
Germany	++	10	++	22
Seyhelles	-	-	++	22
Canada	-	-	++	15
USA	++	11	++	5
Netherlands	-	-	++	2
South Africa	++	1	++	1
Other countries	65	351179	++	1

*Figures rounded off***Table – 20: Imports of Iron Ore: Total
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	8708	42293971	12808	59136711
Australia	2867	7279074	7217	21451196
South Africa	2745	15411266	2653	17602143
Brazil	2178	12246656	1873	10467345
Bahrain	526	5058760	640	6832096
Oman	290	1613832	206	1217681
Canada	++	60	164	1079914
Malaysia	-	-	51	409002
Turkey	4	36624	2	30862
Sweden	++	8231	++	11192
China	++	6539	++	9439
Other countries	98	632929	2	25841

*Figures rounded off***Table – 19 : Exports of Iron Ore: Pellets
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	9311	56966622	9364	73177865
China	7546	46353495	6914	54115114
Korea, Rep. of	530	3285757	754	6150363
UK	60	288050	372	2687972
Oman	388	2277724	214	1699504
Japan	331	2252695	165	1420080
Malaysia	53	366699	159	1144025
Vietnam	206	1196972	159	1074962
Korea, D.P.Rep.	-	-	109	887189
South Africa	-	-	100	775047
Indonesia	52	347558	108	744733
Other countries	145	597672	310	2478875

*Figures rounded off***Table – 21: Imports of Iron Ore: Concentrates
Non-agglomerated
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	2210	12707090	532	3533497
Oman	290	1613832	206	1217681
Canada	++	31	164	1079914
Brazil	1658	9667096	107	856910
South Africa	147	856588	55	361016
Sweden	++	8198	++	11192
Netherlands	++	3098	++	5700
Paraguay	-	-	++	361
Australia	63	315634	++	228
Ukraine	-	-	++	205
USA	++	34	++	195
Other countries	52	242579	-	95

Figures rounded off

**Table – 22: Imports of Iron Ore: Pellets
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	571	5434369	640	6832112
Bahrain	526	5058760	640	6832096
China	-	-	++	16
Russia	45	375609	-	-

*Figures rounded off***Table – 23 : Imports of Iron Ore : Pyrites
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	5	54670	4	58526
Turkey	4	36624	2	30862
China	++	6539	++	9423
Italy	++	4867	++	5571
Pakistan	1	5842	1	4949
Serbia	-	-	++	3794
Finland	-	-	++	3425
Netherlands	-	-	++	425
USA	++	101	++	77
Turkmenistan	++	697	-	-

*Figures rounded off***Table – 24: Imports of Iron Ore Lumps
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	2123	12138902	3196	19735798
South Africa	2123	12138685	2275	15528518
Australia	++	52	921	4206460
Iran	-	-	++	591
Germany	++	63	++	229
Austria	++	39	-	-
Sweden	++	33	-	-
Canada	++	30	-	-

Figures rounded off

**Table – 25: Imports of Iron Ore: Fines
(By Countries)**

Country	2017-18 (R)		2018-19 (P)	
	Qty (‘000 t)	Value (` ‘000)	Qty (‘000 t)	Value (` ‘000)
All Countries	3798	11958941	8436	28976777
Australia	2803	6963388	6296	17244508
Brazil	520	2579560	1766	9610435
South Africa	475	2415993	323	1712608
Malaysia	-	-	51	409002
UK	-	-	++	224

Figures rounded off

FUTURE OUTLOOK

India is one of the leading producers of iron ore in the world. Among the consuming industries, Cement Industry is the second major consumer of iron ore after Iron & Steel Industry (including Sponge Iron Industry). In order to conserve iron ore resources of the country for long-term domestic value addition, export duty on iron ore for both lumps and fines varieties of 58% Fe content and above (except pellets) is @ 30% ad valorem.

The Ministry of Steel under Government of India has recently introduced the new National Steel Policy, 2017 and with the roll out of the National Steel Policy, 2017 and the DMI & SP policy, it is envisaged that the industry can be steered with appropriate policy support in creating an environment for promoting domestic steel and thereby ensuring a scenario where production meets the anticipated pace of growth in consumption. Thus, the Indian Steel Sector is all set to achieve its vision thereby setting a global benchmark in terms of quality, standards and technology. It is anticipated that crude steel

capacity of 300 million tonnes will be required by 2030-31. However, achieving crude steel capacity upto 300 million tonnes will require extensive mobilisation of natural resources, finances, manpower and infrastructure including land. To address the concerns regarding availability of raw material (iron ore) intensive & deeper exploration would have to be promoted for augmentation of resource base. Eco-friendly viable underground mining techniques for optimal utilisation of magnetite ore deposits locked in Western Ghats would also have to be explored in conjunction with mining research institutes. The Government has already promulgated the Mines and Minerals (Development and Regulation) Amendment Act, 2015 and therein has laid great emphasis on time bound mine development with increased stress on mineral exploration and sustainable mining operations.

The Act has brought clarity on mine allocation process (through auction) and procedures for mining lease renewal. The Act, further, provides for reservation of any particular mine for a particular end use and put conditions permitting auction among such eligible end users.