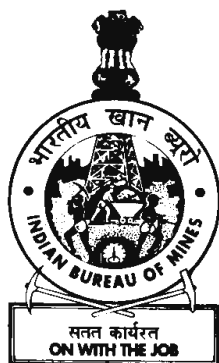


STATE REVIEWS



Indian Minerals Yearbook 2015

(Part- I)

54th Edition

**STATE REVIEWS
(Karnataka)**

(ADVANCE RELEASE)

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

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May, 2017

KARNATAKA

Mineral Resources

Karnataka has the distinction of being the principal gold producing State in the country. The State is the sole producer of feldspar and one of the leading producer of iron ore, chromite, dolomite, dunite, kyanite and shale. Karnataka hosts the country's 79% vanadium ore, 73% iron ore (magnetite), 42% tungsten ore, 37% asbestos, 28% limestone, 21% gold ore (primary), 20% granite (dimension stone), 20% manganese ore, 17% dunite, 13% kyanite, 10% PGM (metal) and 65% corundum resources.

The important mineral-occurrence found in the State are **bauxite** in Belagavi, Chikkamagaluru, Uttara & Dakshina Kannada and Udupi districts; **china clay** in Bengaluru, Belagavi, Ballari, Bidar, Chikkamagaluru, Dharwad, Gadag, Hassan, Haveri, Kolar, Uttara & Dakshina Kannada, Shivamogga and Tumakuru districts; **chromite** in Chikkamagaluru, Hassan and Mysuru districts; **dolomite** in Bagalkot, Belagavi, Vijayapura, Chitradurga, Mysuru, Uttara Kannada and Tumakuru districts; **dunite/pyroxenite** in Chikkamagaluru, Hassan and Mysuru districts; **felspar** in Bengaluru, Belagavi, Chitradurga and Hassan districts; **fireclay** in Bengaluru, Chitradurga, Dharwad, Hassan, Kolar, Shivamogga and Tumakuru districts; **gold** in Chitradurga, Dharwad, Gadag, Kalaburagi, Hassan, Haveri, Kolar, Raichur and Tumakuru districts; **iron ore (hematite)** in Bagalkot, Ballari, Vijayapura, Chikkamagaluru, Chitradurga, Dharwad, Gadag, Uttara Kannada, Shivamogga and Tumakuru districts; **iron ore (magnetite)** in Chikkamagaluru, Hassan, Uttara & Dakshina Kannada and Shivamogga districts; **kyanite** in Chikkamagaluru, Chitradurga, Coorg, Mandya, Mysuru, Shivamogga and Dakshina Kannada districts; **limestone** in Bagalkot, Belagavi, Ballari, Vijayapura, Chikkamagaluru, Chitradurga, Davangere, Gadag, Kalaburagi, Hassan, Mysuru, Uttara & Dakshina Kannada, Shivamogga, Tumakuru and Udupi districts; **magnesite** in Coorg, Mandya and Mysuru districts; **manganese**

ore in Belagavi, Ballari, Chikkamagaluru, Chitradurga, Davangere, Uttara Kannada, Shivamogga and Tumakuru districts; **ochre** in Ballari and Bidar districts; **quartz/silica sand** in Bagalkot, Bengaluru, Belagavi, Ballari, Chikkamagaluru, Chitradurga, Davangere, Dharwad, Gadag, Kalaburagi, Hassan, Haveri, Kolar, Koppal, Mandya, Mysuru, Uttara & Dakshina Kannada, Raichur, Shivamogga, Tumakuru and Udupi districts; **Quartzite** in Belagavi district; and **talc/steatite/soapstone** in Ballari, Chikkamagaluru, Chitradurga, Hassan, Mandya, Mysuru, Raichur and Tumakuru districts.

Other minerals that occur in the State are **asbestos** in Chikkamagaluru, Hassan, Mandya, Mysuru and Shivamogga districts; **barytes** and **pyrite** in Chitradurga district; **calcite** in Belagavi, Vijayapura and Mysuru districts; **copper** in Chikkamagaluru, Chitradurga, Kalaburagi, Hassan, Uttara Kannada, Raichur and Shivamogga districts; **corundum** in Bengaluru, Ballari, Chitradurga, Coorg, Hassan, Mandya, Mysuru and Tumakuru districts; **fuller's earth** in Belagavi and Kalaburagi districts; **granite** in Bagalkot, Bengaluru, Bellari, Vijayapura, Chamrajanagar, Chikkamagaluru, Chitradurga, Coorg, Dharwad, Gadag, Kalaburagi, Hassan, Kolar, Koppal, Mandya, Mysuru, Uttara & Dakshina Kannada, Raichur, Tumakuru and Udupi districts; **graphite** in Kolar and Mysuru districts; **gypsum** in Kalaburagi district; **molybdenum** in Kolar and Raichur districts; **nickel** in Uttara Kannada district; **Platinum Group of Metals** in Davangere district; **sillimanite** in Hassan, Mysuru and Dakshina Kannada districts; **silver** in Chitradurga and Raichur districts; **titanium minerals** in Hassan, Uttara Kannada and Shivamogga districts; **tungsten** in Gadag, Kolar and Raichur districts; **vanadium** in Hassan, Uttara Kannada and Shivamogga districts; and **vermiculite** in Hassan, Mandya and Mysuru districts (Table - 1).

Exploration & Development

The details of exploration activities conducted by GSI and various agencies during 2014-15 are furnished in Table - 2.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2010/1.4.2013* : Karnataka

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								
Asbestos	tonne	-	-	-	-	-	-	-	2441037	5841420	-	8282457	8282457			
Barytes	tonne	-	-	-	-	-	-	-	-	15175	-	15175	15175			
Bauxite**#	000 tonnes	126	1474	3403	5003	2550	864	10	2220	35567	-	41210	46213			
Calcite#	tonne	-	-	-	-	-	-	64	14400	51865	-	66329	66329			
China clay#	000 tonnes	943	835	280	2058	819	738	3390	443	24685	6030	256466	258524			
Chromite*	000 tonnes	328	408	12	748	270	242	96	20	301	-	928	1676			
Copper*																
Ore	000 tonnes	-	-	342	342	836	1801	2039	1750	20434	-	34457	34799			
Metal	000 tonnes	-	-	4.04	4.04	8.78	17.56	11.51	22.00	99.61	-	225.83	229.87			
Corundum**#	tonne	-	-	-	-	52645	756	53590	13	14169	52675	173885	173885			
Dolomite**#	000 tonnes	27783	5910	5861	39555	15634	9780	14509	8519	454274	13482	592442	631997			
Dunite	000 tonnes	3718	-	223	3940	-	-	-	23909	4149	-	28058	31998			
Felspar#	tonne	119525	69575	107055	296155	-	-	-	25000	177300	3900	341333	637488			
Fireclay#	000 tonnes	95	324	85	503	792	595	6871	-	5250	-	13734	14238			
Fuller's earth	tonne	-	-	58200	58200	-	-	-	551640	1471276	-	2022916	2081116			
Gold*																
Ore	(primary) tonne	10899536	2832000	863529	14595065	831000	1260000	215132	24979968	16020323	37673000	89184018	103779083			
Metal																
(primary)	tonne	56.37	7.72	7.75	71.84	2.53	3.59	0.78	120.73	38.29	43.78	238.37	310.21			
Granite																
(Dim. stone)	000 cu m	26363	19389	21836	67588	-	-	-	238	1231625	8012784	25659	9270306			
Graphite*	tonne	-	-	-	-	7696	39570	90	-	18200	-	65556	65556			
Gypsum#	000 tonnes	-	-	-	-	-	-	-	-	3784	-	3784	3784			
Iron ore*																
(Hematite)	000 tonnes	289811	8010	80546	378367	507851	55804	203160	250976	598541	226876	1890453	2268819			

(Contd.)

Table-1 (Contd.)

Mineral	Unit	Reserves				Remaining resources				Total resources (A+B)		
		Proved STD 111	Probable STD121 STD122	Total (A) Feasibility STD211	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)	
Iron ore*	000 tonnes	-	-	- 120022	-	18375	1498957	479372	5345018	340000	7801744	7801744
(Magnetite)	000 tonnes	-	-	- 120022	-	18375	1498957	479372	5345018	340000	7801744	7801744
Kyanite	tonne	-	-	- 309525	21600	18843	386247	1610502	10688721	-	13035438	13035438
Limestone	000 tonnes	538927	486300	72518 1097745	171995	394671	1573788	13919929	34579866	8240	51102029	52199775
Magnesite*	000 tonnes	755	147	55 957	100	190	88	10	2836	-	3458	4415
Manganese												
ore*	000 tonnes	3629	570	709 4908	13793	3959	1516	7374	52748	257	89959	94867
Molybdenum*												
Ore	tonne	-	-	-	-	-	-	-	1320900	-	1320900	1320900
Contained												
MoS ₂	tonne	-	-	-	-	-	-	-	1718.70	-	1718.70	1718.70
Nickel ore*	Million tonnes	-	-	-	-	-	-	-	0.23	-	0.23	0.23
Ochre	tonne	-	-	-	-	-	-	-	-	20000	1786367	1786367
Platinum group												
of metals	tonne	-	-	-	-	-	-	-	-	1.50	1.50	1.50
Pyrites	000 tonnes	-	-	-	-	-	-	-	3000	-	3000	3000
Quartzite*	000 tonnes	390	-	1011 1401	-	-	-	-	-	1730	1920	3321
Quartz-												
silica sand*	000 tonnes	8677	3809	2375 14861	12402	4970	205	100	49508	525	75987	90848
Sillimanite	tonne	-	-	-	-	-	-	-	982725	-	982725	982725

(Contd.)

Table-1 (Concl.)

Mineral	Unit	Reserves				Remaining resources					Total resources (A+B)
		Proved STD 111	Probable STD121 STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221 STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	
STATE REVIEWS											
Silver*											
Ore	tonne	8681065	-	8681065	-	69462	-	314150	-	383612	9064677
Metal	tonne	2.67	-	2.67	-	0.48	-	2.92	-	3.40	6.07
Talc-steatite- soapstone#	000 tonnes	35	-	217	49	124	217	11	208	1242	2068
Titanium**											
minerals	tonne	-	-	-	-	-	-	13862094	-	13862094	13862094
Tungsten*											
Ore	tonne	-	-	-	-	-	-	15361152	11805499	172921	36677818
Contained											
WO ₃	tonne	-	-	-	-	-	-	2915	1775	142	6235
Vanadium*											
Ore	tonne	-	-	-	-	500000	4000000	-	-	14884430	19384430
Metal	tonne	-	-	-	-	700	5600	-	-	43197.55	49497.55
Vermiculite	tonne	-	-	-	-	69050	64500	-	1562	66658	201770

Figures rounded off.

* Reserves/Resources as on 1.4.2013

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

Declared as minor mineral vide Gazette notification dated 10.2.2015.

STATE REVIEWS

Table – 2 : Details of Exploration Activities in Karnataka, 2014-15

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Diamond							
Ballari and Chitradurga	Wajrakarur Kimberlite Field	-	-	-	-	-	G4 stage investigation was taken up. Digital image processing of downloaded ETM+data of two scenes P144 R50 and P145 R50 was done using ERDAS Imaging software to prepare lineament map on a regional scale so as to cover the known Wajrakarur Kimberlite Field and the area under investigation. A shear zone about 0.5 km width trending in N35°W-S35°W direction is found to the south east of Vaderahalli which is characterised by stretching of quartz grains. A N70°E-S70°W trending fault is intersecting the above mentioned shear. The fault is identified by silicification, brecciation, mylonitisation and the dislocation of quartz veins on outcrop scale. PGRS study and study of Vasundhara lineament map reveals this to be the extension of Wajrakarur Fault. The investigation will be continued in FS 2015-16.
Ballari and Chitradurga	Northwest of Chirtagunta	-	-	-	-	-	G4 stage investigation was taken up. The area is occupied by rocks belonging to unclassified eastern Dharwar consisting schistose rocks, granites and gneisses of PGC-II and Clospet granite equivalents and younger intrusives of acidic and basic dykes. Three km NW of Chirtagunta, calcrete capping is identified over the granite. Sample processing and screening of the samples was done at camp. The fraction with 1 mm to 0.5 mm and 0.5 mm to 0.3 mm size were taken up for further concentration with the help of Garytz type jig (gravitational separation apparatus) and subjected to iso-dynamic separation at PPOD laboratory. Magnetic minerals were removed by bar magnet rolled over the jig concentrate. Samples separated with under the binocular microscope to recover the kimberlite indicator minerals like ilmenite, garnet, spinel, chrome diopside, zircon, microdiamond, olivine etc. The investigation will be continued in FS 2015-16.
Gold							
Dharwar	Bangaragatti	-	-	-	-	-	G3 stage investigation was carried out to assess gold mineralisation. Geologically, the area consists of metasedimentary rocks like argillite and banded iron formation (BIF). The BIF is interbedded with argillite rock and they are structurally likely disturbed at folded portions; the band thickness varies from half metres to six metres at places. Total (Contd.)

STATE REVIEWS

Table – 2 (contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							cumulative length of BIF is 800 metre. 24 cubic meter of trench excavated. A total of 35 BRS, 7 samples for petrological studies and 6 for ore microscopic study were collected. Ten (10) boreholes each of 100 m depth are planned in the central band to establish the sub-surface behaviour of about one km long mineralised zone during the FS 2014-15. The exploration by drilling in the Bangaragatti area commenced from the northern side of the block. The area is located at a distance of 2.5 km west of Hullambi village. All the boreholes intersected the zones with various widths and thicknesses. The zone is characterised by disseminations of sulphides. The investigation will be continued.
Dharwar	Hulkoppa block	-	-	-	-	-	A G4 stage investigation for gold was carried out. The mapped area exposes argillite-greywacke assemblage with BIF bands, traversed by younger gabbro dykes and quartz veins of different generations. During the period, five BMQ bands were delineated in the area and were named as band nos. I, II, III, IV & V. A total cumulative strike length of 3100 m is established in five BMQ bands. The mineralisation here is mainly confined to quartz carbonate veins/veinlets hosted by the sheared BMQ that contains sulphides, mainly pyrite and pyrrhotite and few specks of arsenopyrite. Trenches are excavated across the BMQ bands at 100-150 m intervals. Total 39 nos. of trench samples and 75 nos. BRS collected across the BMQ bands submitted for chemical analysis. The investigation is completed.
Shivamogga	Parts of Shivamogga schist belt	-	-	-	-	-	A G4 stage investigation was carried out for assessment of gold mineralisation. The project area exposes the rocks of Jandimatti Formation of Shivamogga Group and are characterised by the sequences of meta-sedimentary and meta-volcanic rocks. The different rock types observed during mapping are quartzite, quartz-chlorite schist, meta basalt, BIF and conglomerate. The gold mineralisation in the area is confined within the metabasalt and quartz-carbonate veins hosted by metabasalt. A parallel zone is identified 25 to 30 metres west of main mineralised zone near the small hillock north of UNESCO pillar at Kudrekonda. To the southern part of Kudrekonda block, evidences of

(Contd.)

STATE REVIEWS

Table – 2 (contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							shear and mineralisation is observed 30 metres east of main zone (which is marked by the alignment of old workings). This zone is traceable for 100 metres and characterised by pyrrhotite and chalcopyrite. The quartz rubble from this part shows malachite stains as well. The BIF bands NW of Maddapuratanda are found sulphidiferous and are sampled for the entire strike length to identify potential zones, if any. The investigation is completed.
Gold							
Shivamogga	Northwest of Musinhal village	-	-	-	-	-	A G4 stage investigation was carried out to assess gold mineralisation. Quartz-carbonate rock with intrusive quartzite, banded magnetite quartzite, titaniferous-vanadiferous magnetite, basic dyke and quartz veins are occasionally observed throughout the area. Layered carbonated metabasalt with sulphide grains i.e. pyrite, chalcopyrite are observed atop 774 ridge, 2 km NW of Musinhal village on the way to Palavanahalli village. NW of Musinhal village highly sheared metabasalt and quartz-chlorite-sericite schist are observed. This shear zone is marked by intense shearing and alteration in the form of carbonatisation, silicification, chloritisation, tourmalinisation, fuchsitisation, and carrying sulphide mineralisation as stringers and disseminations of pyrite and minor chalcopyrite. This shear zone is forming a parallel zone to the trend of Kudrakonda old working mines. Pounding marks are observed on massive outcrop along the slope of ridge at Birnakere Reserve Forest. A zone of titaniferous-vanadiferous magnetite (TVM zone) of 3 km length and 250 m width is traced with discontinuous patches, 1 km SE of Yadavala village to 2 km east of SE of Tyjavalli village. Small pockets of manganese are discovered at 3 km west of Birnakere village in and around 852 peak/ridge. The investigation is completed.
Gold							
Tumakuru	Ajjanahalli Block-G	-	-	-	-	256	G3 stage investigation was carried out for assessment of gold mineralisation. In Block-G, a total 255 nos. of borehole core samples and one bed rock sample were collected during the field season. Chemical analysis of 172 nos. samples (collected from boreholes AGG-1 to AGG-3 & 11 nos. of samples of AGG-4) has been received so far. In AGG-1 average gold value is of 0.19g/t/1.0 m whereas in borehole AGG-2 the same (Contd.)

STATE REVIEWS

Table - 2 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							mineralised zone continues with values of 0.63 g/t/1.0 m and 0.90 g/t/0.5 m in the targeted BIF band. In AGG-3 gold values are of 0.30g/t/0.5m and 0.5g/t/0.5m. In borehole AGG-4, the average gold value is of 0.18g/t/1.0 m in the targeted BIF band. The length of mineralised zone will be calculated after receiving all the chemical analyses. Sulphide mineralisation such as pyrite, pyrrhotite and arsenopyrite occurs as disseminated specks, vein and stringers along foliation/fracture planes in the BIF band as well as carbon phyllite unit. The mineralisation is confined to sheared silicified BIF hosting thin quartz-carbonate veins and veinlets. The investigation will be continued.
-do-	Ajjanahalli area	-	-	-	-	102	G4 stage investigation was carried out to delineate gold mineralised zones. In Ajjanahalli H-block, the detailed geological mapping has been completed and fifty seven bed rock samples, 66 cu m of trenching and 45 trench samples have been generated. One carbonated BIF band with four major BIF bands and other two minor BIF bands between BIF-II & III were delineated. The carbonated BIF band, with a total strike length of 550 m, is partly massive and partly brecciated. The BIF band-I, with strike length of 1050 m, shows partly massive and partly brecciated and silicified, along which band so far three trenches were excavated at 75 m to 100 m interval. BIF band-II & III, with total strike length of 750 m 1000 m are partly massive and some partly brecciated and silicified in nature. BIF band-IV, with a strike length of 600 m, is very thin having a width of maximum 2 m. So far received out of the analytical results of 58 nos. of samples (BRS+PTS), 5 nos. samples show Au values varying from 0.04 g/t/1m to 0.15 g/t/1m. The investigation is completed.
Iron ore Bagalkot	Amingad-Kamatgi-Sirur (Hungund-Kushtagi Schist belt)	-	-	-	-	-	G4 stage investigation for iron ore was carried out in Hungund-Kushtagi Schist belt. The Hungund-Kushtagi schist belt forms NW continuation of Ramgiri-Penakacherla schist belt in Karnataka. The schist belt comprises metabasalt, meta-acid volcanics, banded iron Formation (BIF), meta-argillite and minor intercalated meta-sedimentary units like quartz-chlorite schist and greywacke. These are intruded by younger granites and basic dykes. The schist belt is overlain by lithounits of

(Contd.)

STATE REVIEWS

Table - 2 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							Kaladgi Supergroup. Four banded hematite quartzite bands trending NNW-SSE are delineated with width ranging from 10 m-35 m. One BHQ band is traced for 2.4 km strike length east of Huvinahalli. The bands are highly deformed. Analytical values obtained indicate Fe ₂ O ₃ upto 45%. The work will continue in FS 2015-16.
Davanagere	Basavapatna-Kerebilichi block, Channagiri taluk	-	-	-	-	-	G4 stage investigation for iron ore was taken up with an objective to assess iron ore and gold in BIF. The area exposes BIF, phyllite, acid volcanics and quartz ± sericite/chorite schist. The BIF in the area is mainly banded haematite quartzite, at places it is banded magnetite quartzite/ banded haematite chert. Three parallel bands of BIF extend from Hosahalli to Basavapatna with width varying from 1m to 10m for a strike length of 4 km. The BIF in the Yalodahalli area also consists of three bands with a maximum width of 17 m. The work has been completed.
Nickel							
Hassan and Tumakuru		LSM DM	100 0.5	-	-	-	G4 stage investigation for Nickel was carried out. Large scale mapping of 100 sq km and detailed mapping of 0.5 sq km has been completed. The Archaean greenstone belt (Sargur Type) comprises meta-dunite/peridotite (chlorite- serpentine schist), meta-pyroxenite (tremolite-chlorite schist/ chlorite schist), amphibolite (hornblende schist/ hornblendite) defining the mafic-ultramafic suite. The serpentinite and meta-pyroxenite variants are generally non-chromiferous, rare disseminations noted at places. Yellow/green-spotings (high Ni?) in serpentinite and meta- pyroxenite (magnetite alteration) are common.
RM/REE							
	Wanadurg	LSM DM	100 0.5	-	-	-	For REE investigation, a total area of 100 sq km was mapped along with detailed mapping of 0.5 sq km in the area exposed with different variety of younger granites (Closepet Granite) which were intruded into the PGC.
	Tamankal and Raidurg	LSM DM	100 0.5	-	-	-	LSM of 100 sq km and DM of 0.5 sq km were completed in Tamankal and Raidurg, for REE investigation. During LSM, a 6-8 m wide and 27-30 m length pegmatite vein trending N80°E was observed in the area with suspected REE characteristic unit. The pegmatite vein exhibits various alterations like iron leaching, limonitisation, manganese layering, silicification in the form of

(Contd.)

STATE REVIEWS

Table - 2 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							veinlets and some metallic pits. The suspected mineralised portion appears dark grey in colour with fine grain nature. Some veinlets of metallic concentration were also observed. LSM in and around Gogalgatti revealed a 20-25 m wide and 1.7 km length quartz reef trending N10°E was observed in the area with suspected REE characteristic unit. During LSM at and around Bandihalli metallic mineralisation was observed in pegmatite bodies (N45°W). In Bandori brecciated and silicified grey quartz veins trending in north-south direction were observed in Lingadahalli quartz veins with epidotisation trending N-S direction were observed. Two sets of joints trending N80°W and N23°E were observed. Metallic minerals were also present in the quartz veins. The area is characterised by amphibolite, granodiorite gneiss, dolerite dykes and pink biotite granite. Minor intrusives of quartz vein have also been observed. During the LSM in and around Benchagaddi, a quartz hillock of 10-15 m radius was mapped. White quartz with Fe leaching observed. Pegmatite veins trending N45°W were observed in Tintini with sporadic metallic mineralisation. At Bandiholi quartz vein trending N-S direction occur with exposed length of around 30 m long and 4 m wide with Fe leaching. Similar quartz veins were also observed at Yeragoti. Metallic mineralisation is also recorded. Trenches T1 and T2 were made to excavate the quartz carbonate vein near Aidbhavi.
HGML Gold Raichur	Hutti	1:400 (U/G)	2045.1m	19(Surface) 29 (U/G)	3865.85 3917.7 2814.76 (exploratory mining)	10005 (Total)	As on 31-03-2015, reserves of gold ore were estimated at 9.21 million tonnes with 5.28 g/t Au under proved and 7.23 million tonnes with 4.83 g/t Au under probable category.
-do-	Hira-Buddini	-	-	-	177.5 (exploratory mining)	1081	About 0.502 million tonnes of proved reserves of gold ore with 3.94 g/t Au were computed.
-do-	Uti	-	-	-	491.2 (exploratory mining)	1628	Total mineable reserves were estimated at 2.18 million tonnes ore with 2.59 g/t Au.

(Contd.)

STATE REVIEWS

Table - 2 (Concl'd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
MECL							
Iron Ore							
Ballari	Sandur Tq. (ML No. 2186)	1:1000	0.1589	14	487.5	500	Exploration carried out in six blocks/ leases for DMG on contractual basis.
	ML No. 2525	1:1000	0.1743	12	644	657	Lease wise exploration works conducted
	ML No. 2487	1:1000	0.8612	56	1671.5	1605	are (i) M/s B. R. Yogendranath Singh
	ML No. 2313	1:1000	0.2161	14	644	620	mining lease area (ML no 2186):
	ML No. 2559	1:1000	0.2671	17	1000.5	985	Estimated 2.84 million tonnes of iron
	ML No. 2290)	1:1000	0.2161	48	2240.5	2182	ore at 35% Fe cut - off with 39.01% Fe (G-3). (ii) M/s Deccan Mining Syndicate mining lease area (ML no. 2525): Estimated 35.86 million tonnes of iron ore at 45% Fe cut-off with 62.51% Fe (G-1). (iii) M/s Lakshminaryana Mining Company lease area (ML no 2487): Estimated 14.71 million tonnes of iron ore at 45% Fe cut-off with 52.91% Fe (G-1). (iv) M/s Hotur Traders mining lease area (ML no. 2313): Estimated 10.03 million tonnes of iron ore at 45% Fe cut-off with 54.41% Fe. (v) M/s Kartikeyas Manganese and Iron Ore mining lease area (ML no 2559): Estimated 28.4 million tonnes of iron ore at 45% Fe cut-off with 55.33% Fe (G-1) and (vi) M/s V. S. Lad and Sons mining lease area (ML no. 2290): Estimated 28.618 million tonnes iron ore reserves at 45% Fe cut-off with 56.69% Fe (G-1).
Mysore Minerals Ltd (MML)							
Chromite							
Mysuru	Thagadur mines	1:1000	-	-	-	2	MML carried out exploration for chromite in Thagadur chromite mines by geophysical mapping on 1:1000 scale, analysed two samples and estimated 5.02 lakh tonnes resources.
Iron Ore							
Ballari	Subbarayanahalli & Thimmappana- gudi mines	-	-	32	2055	-	MML carried out exploration for iron ore in the area by drilling. In Subharayanahalli mines 2,055 m drilling in 32 boreholes and in Thimmappana- gudi mines 92 m drilling in 02 boreholes were conducted. Total 67.43 million tonnes and 14.38 million tonnes of geological reserves of iron ore were computed in both the mines, respectively.
		-	-	02	92	-	
NMDC							
Iron Ore							
Ballari	Subbarayanahalli & Thimmappana- gudi mines	-	-	24	974.2	360	In Donimalai Iron Ore Mines, 974.20 m drilling in 24 boreholes and collection of 360 samples have been carried out. Total 2.61 million tonnes of iron ore reserves enhanced in (111) category in Donimalai mine.

STATE REVIEWS

Production

The value of mineral production (excludes atomic minerals and value for February and March in respect of 31 minerals declared as minor mineral vide Gazette notification dated 10.02.2015) in Karnataka at ₹ 8,483 crore in 2014-15 increased by about 8% as compared to the previous year mainly due to increase in the value of output of iron ore, limestone, manganese ore and shale during the year. Iron ore, gold, limestone, manganese ore, laterite and shale are the important minerals produced in the State and accounted for about 76% of the total value of mineral production in 2014-15. Karnataka was the leading producer of gold.

Among the important minerals, production of kyanite and chromite doubled as compared to the previous year. Increase in production was also

seen in case of bauxite (71%), manganese ore (34%), magnesite (18%), limestone (11%) and iron ore and gold ore (8% each). Marginal decrease in production was noticed in minerals like gold, silver etc. (Table- 3).

The value of production of minor minerals was estimated at ₹ 2,018 crore for the year 2014-15.

The number of reporting mines in Karnataka were 183 in 2014-15 as against 192 in the previous year.

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, the important mineral-based industries in organised sector in the State are given in Table - 4.

**Table – 3 : Mineral Production in Karnataka, 2012-13 to 2014-15
(Excluding Atomic Minerals)**

Mineral	Unit	2012-13			2013-14			2014-15 (P)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		219		60873185	192		78827441	183		84828055
Bauxite	t	2	81200	28420	2	74500	24064	2	127500	31920
Chromite	t	4	6828	28720	4	1003	4074	4	2474	10049
Gold Ore	t	-	499061	-	-	412877	-	-	444439	-
Gold	kg	3	1583	5157969	3	1556	4202589	3	1429	3576761
Iron Ore	'000t	74	11504	35811462	66	18684	50484086	60	20157	56395912
Manganese Ore	t	14	39540	221931	11	144528	673035	10	194123	875841
Silver*	kg	-	145	9136	-	154	6569	-	139	5117
Corundum [#]	kg	1	5000	75	-	-	-	-	-	-
Dolomite [#]	t	17	728186	179331	16	642906	205147	13	619367	208550
Dunite [#]	t	1	8750	1173	1	978	173	1	1123	164
Felspar [#]	t	1	-	-	1	-	-	-	-	-
Fireclay [#]	t	1	16307	10000	1	13966	7813	-	2965	2535
Felsite [#]	t	5	1266	909	3	551	475	2	324	242
Graphite (r.o.m.)	t	1	3241	3889	1	2205	2646	2	-	-
Kaolin [#]	t	1	2836	7657	2	2540	7112	1	1984	6271
Kyanite	t	-	-	-	1	1416	708	1	4400	3520
Laterite [#]	t	1	163200	58272	1	118500	46386	1	121200	52154
Limestone	'000t	64	21132	3147566	54	21590	2833943	60	24031	3315013
Magnesite	t	3	11495	40937	3	7720	29371	3	9129	38955
Quartz [#]	t	6	6931	2225	7	63624	22443	5	88673	30344
Quartzite [#]	t	1	10000	4900	1	13000	5200	1	8500	4505
Silica Sand [#]	t	18	102854	37845	13	133005	56455	13	88773	39998
Shale [#]	t	-	546026	37730	-	670136	33507	-	646286	48559
Vermiculite	t	1	100	30	1	-	-	1	-	-
Minor Minerals @		-	-	16083008	-	-	20181645	-	-	20181645

Note: The number of mines excludes silver and minor minerals.

** Recovered at Raichur and Tumakuru during refining of gold.*

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

Declared as minor mineral vide Gazette notification dated 10.02.2015.

STATE REVIEWS

Table – 4 : Principal Mineral-based Industries in Karnataka

Industry/plant	Capacity ('000 tpy)
Abrasives	
Grindwell Norton Ltd, Bengaluru.	NA
Sri Sadguru Abrasives Pvt. Ltd, Mache, Distt. Belagavi.	24 (t)
Alumina	
Hindalco Industries Ltd, Belagavi.	350 (alumina)
Cement	
ACC Ltd, Wadi (Wadi & Wadi New), Distt. Gulbarga.	6090
ACC Ltd, Kudithini, Ballari (G).	1100
ACC Ltd, Thondebhavi, Distt. Chickballapur (G).	1600
Bagalkot Cement Industries Ltd, Distt. Bagalkot.	600
CCI Ltd, Kurkunta, Distt. Kalaburagi.	198
Chettinad Cement, Kallur, Distt. Kalaburagi.	2500
Dalmia Cement, Yadwad, Distt. Belagavi.	2600 (Trial Run)
Heidelberg Cement India Ltd, (Formerly Mysore Cements Ltd) Ammasandra, Distt. Tumakuru.	570
J. K. Cement Ltd, Muddapur, Distt. Bagalkot.	3000
JSW Cement, Vijaynagar, Distt. Ballari.	600
Kesoram Industries, Vasvadatta Cement, Sedam, Distt. Kalaburagi.	5750
Kalaburagi Cement Pvt Ltd (formerly Vicatsagar) Chatrasala, Distt. Kalaburagi.	2290
Ramco Cement Ltd, Mathodu, Distt. Chitradurga.	290
Ultratech Cement, Raj Shree Cement, Malkhed, Distt. Kalaburagi.	3200
Ultratech Cement, Ginigera, Distt. Koppal (G).	1300
Ceramic	
Ceramic Products Ltd, Khanapur, Distt. Belagavi.	5
H&R Johnson (India) Ltd, Hubballi.	47.72 (Contd.)

Table - 4 (Contd.)

Industry/plant	Capacity ('000 tpy)
Murudeshwar Ceramics Ltd, Dharwad.	115
The Mysore Spongware Pipes Potteries Ltd, Solandavanahalli, Bengaluru.	6
Chemical	
Solaris Chem Tech Industries Ltd, Bhinga, Distt. Uttara Kannada.	59.4 (caustic soda), 52.3 (Cl), 133.7 (HCl) 24.0 (H ₃ PO ₄)
Fertilizer	
K. P. R. Fertilizers Ltd. Halvarthi, Koppal.	60 (SSP)
Mangalore Chemical & Fertilizers Ltd, Panambur, Mangaluru.	379.5 (Urea) 260 (DAP) 40 (Complex)
Tungabhadra Fertilizers & Chemicals Ltd., Munirabad, Koppal.	45 (SSP)
Iron & Steel	
JSW Steel Ltd, Vijayanagar, Distt. Ballari.	9200 (pellets) 720 (pig iron) 10000 (crude/liquid steel) 12950 (sinter)
Visvesvaraya Iron & Steel Ltd, Bhadravati, Distt. Shivamogga.	205 (pig iron) 118(crude/liquid steel) 4.8 (refractory bricks)
Sunvik Steels Pvt. Ltd, Jodidevarahally, Distt. Tumakuru.	60 (sponge iron) 60 (TMT bar)
Pellets	
KIOCL, Mangaluru.	3500 (pellets) 6700 (conc.) 227 (pig iron)
BMM Ispat, Danapur, Distt. Ballari.	2400 (pellets)
Xindia Steel, Koppal.	800 (pellets)
Pig Iron	
Uni-Metal Ispat Ltd, Ballari.	75
Kalyani Ferrous Ind. Ltd, Koppal.	120
Kirloskar Ferrous Industries Ltd, Bevinahalli, Distt. Koppal.	240
Sponge Iron	
Agrawal Sponge & Energy (P) Ltd, Kuduthini, Distt. Ballari.	72

(Contd.)

STATE REVIEWS

Table - 4 (Contd.)

Industry/plant	Capacity ('000 tpy)
Balakundi Premium Steels Pvt. Ltd, Halakundi, Distt. Ballari.	34
Bellary Ispat (P) Ltd, Halakundi Distt. Ballari.	33
Ballary Steel & Alloys Ltd, Ballari.	60
Benaka Sponge Iron Pvt. Ltd, Belagal, Distt. Ballari.	60
Dhruvdesh Metasteel Pvt. Ltd, Hirebaganal, Distt. Koppal.	60
Divya Jyoti Steel Ltd, Taranagar, Distt. Ballari.	30
Embitee Iron & Steel Pvt. Ltd, Ballari.	60
Gayatri Metals Pvt Ltd, Belagal, Distt. Ballari.	30
Janki Corp. Ltd, Sidiginamola, Distt. Ballari.	180
Haryana Steel and Power, Shanthigrama, Distt. Hassan.	35
Hare Krishna Metallics Pvt Ltd, Hire Baganal, Distt. Koppal.	75
Hospet Ispat Pvt. Ltd, Allanagar Bagnal Road, Distt. Koppal.	60
Hothur Ispat Pvt. Ltd, Veniveerpur, Distt. Ballari.	60
KMMI Steel Pvt. Ltd, Yerabanahally, Distt. Ballari.	120
Mastek Steels Pvt. Ltd, Halakundi, Distt. Ballari.	105

(Contd.)

Table - 4 (Concl.)

Industry/plant	Capacity ('000 tpy)
Noble Distilleries & Powers Ltd, Sirivar, Distt. Ballari.	72
PGM Ferro Steel Pvt. Ltd, Hariganadani, Distt. Ballari.	60
Popuri Steels Ltd, Halakundi, Distt. Ballari.	30
Rayon Steel Pvt Ltd, Veniverapur, Distt. Ballari.	60
Rengineni Steel Pvt. Ltd, Halakundi, Distt. Ballari.	25
Shree Venkateshwara Sponge & Power Ltd, Halakundi, Distt. Ballari.	30
Yashshvi Steel & Alloys Ltd, Halakundi, Distt. Ballari.	30
Ferro Alloys Dandeli Steel & Ferro Alloys Ltd, Dandeli.	6
Sandur Manganese & Iron Ore Ltd, Vyasankere Distt. Ballari.	24
S.R. Chemicals & Ferro Alloys Ltd, Honaga, Distt. Belagavi.	0.3
Thermit Alloys Pvt. Ltd, Shivamogga.	1.2
Petroleum Refinery MRPL, Mangaluru.	15000

G; Grinding Unit

Note: Data for fertilizer and cement industries is taken from Indian Fertilizer Scenario, 2015/FAI Statistics, 2014-15 and Survey of Cement Industry & Directory, 2015 respectively.