

STATE REVIEWS



# Indian Minerals Yearbook 2021

**(Part-I)**

**60<sup>th</sup> Edition**

**STATE REVIEWS  
(Karnataka)**

**(ADVANCE RELEASE)**

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

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**July, 2023**

## 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, 72% iron ore (magnetite), 65% corundum, 42% tungsten ore, 36% asbestos, 27% limestone, 21% gold ore (primary), 20% granite (dimension stone), 20% manganese ore, 17% dunite, 13% kyanite and 10% PGM (metal) 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 & Tumakuru districts; **chromite** in Chikkamagaluru, Hassan & Mysuru districts; **dolomite** in Bagalkot, Belagavi, Vijayapura, Chitradurga, Mysuru, Uttara Kannada and Tumakuru districts; **dunite/pyroxenite** in Chikkamagaluru, Hassan and Mysuru districts; **feldspar** in Bengaluru, Belagavi, Chitradurga & Hassan districts; **fireclay** in Bengaluru, Chitradurga, Dharwad, Hassan, Kolar, Shivamogga & Tumakuru districts; **gold** in Chitradurga, Dharwad, Gadag, Kalaburagi, Hassan, Haveri, Kolar, Raichur & Tumakuru districts; **iron ore (haematite)** in Bagalkot, Ballari, Vijayapura, Chikkamagaluru, Chitradurga, Dharwad, Gadag, Uttara Kannada, Shivamogga & Tumakuru districts; **iron ore (magnetite)** in Chikkamagaluru, Hassan, Uttara & Dakshina Kannada and Shivamogga districts; **kyanite** in Chikkamagaluru, Chitradurga, Coorg, Mandya, Mysuru, Shivamogga & Dakshina Kannada districts; **limestone** in Bagalkot, Belagavi, Ballari, Vijayapura, Chikkamagaluru, Chitradurga, Davangere, Gadag, Kalaburagi, Hassan, Mysuru, Uttara & Dakshina Kannada, Shivamogga, Tumakuru & Udupi districts; **magnesite** in Coorg, Mandya & Mysuru districts; **manganese ore** in Belagavi, Ballari, Chikkamagaluru, Chitradurga, Davangere, Uttara

Kannada, Shivamogga & 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 & Udupi districts; **Quartzite** in Belagavi district; & **talc/steatite/soapstone** in Ballari, Chikkamagaluru, Chitradurga, Hassan, Mandya, Mysuru, Raichur & Tumakuru districts.

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

### Exploration & Development

The details of exploration activities conducted by GSI for chromium, gold, base metal, platinum group of elements, nickel and diamond also by KSMCL (Karnataka State Minerals Corporation Limited) during 2020-21 are furnished in Table - 2.

**Table – 1 : Reserves/Resources of Minerals as on 1.4.2020: 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	
Bauxite	'000 tonnes	126	194	4887	2468	864	88	82	2220	35520	-	41242	46449	
Chromite	'000 tonnes	176	-	323	474	378	54	-	20	392	-	1317	1817	
Copper														
Ore	'000 tonnes	-	-	-	867	1301	3114	1750	6833	27634	-	41499	41499	
Metal	'000 tonnes	-	-	-	-	-	15.28	22	65.77	142.81	-	245.86	245.86	
Gold														
Ore														
(Primary)	tonne	17050000	3420000	-	20470000	2013000	1964000	174000	4304968	464495718	21773820	5813000	82538506	103008506
Metal														
(Primary)	tonne	74.02	13.44	-	87.46	5.12	0.64	14.13	44.17	48.91	45.68	165.71	251.17	
Graphite	tonne	-	-	-	-	203673	30600	48821	41605	667933	-	992632	992632	
Iron Ore														
(Haematite)	'000 tonnes	897256	39779	106177	330334	46621	84816	592180	62882	504234	171714	1792781	2835992	
Iron Ore														
(Magnetite)	'000 tonnes	133	185	-	318	120131	-	18375	1498957	479372	5345018	340000	7801853	7802171
Kyanite	tonne	181600	-	-	181600	230660	15930	119368	386247	1610502	10628753	-	12991460	13173060
Limestone	'000 tonnes	1766001	2013	503208	2271221	584131	522239	778646	1776165	15091800	35135248	11008	53899236	56170457
Magnesite	'000 tonnes	997	30	-	1027	802	247	88	10	2834	264	4516	5543	
Manganese														
Ore	'000 tonnes	15363	-	101	15464	14723	2373	18700	7306	55471	329	108508	123972	
Molybdenum														
ore	tonne	-	-	-	-	-	-	-	-	1320900	-	1320900	1320900	
Contained MoS2	tonne	-	-	-	-	-	-	-	-	1718.7	-	1718.7	1717.7	
Nickel ore	Million tonne	-	-	-	-	-	-	-	-	0.23	-	0.23	0.23	
Pt.Group of														
Metals	tonne	-	-	-	-	-	-	-	-	-	-	1.5	1.5	
Pyrite	'000 tonnes	-	-	-	-	-	-	-	-	3000	-	3000	3000	

(Contd.)

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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	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334
Rare Earth Elements	tonne	-	-	-	-	-	-	3350	384	3734	3734
Sillimanite	tonne	-	-	-	-	-	-	982725	-	982725	982725
Silver											
Ore	tonne	17480000	4640000	22120000	-	-	69462	2254150	-	3813612	25933612
Metal	tonne	4.43	1	5.43	-	-	0.48	3.42	-	4.29	9.72
Titanium	tonne	-	-	-	-	-	-	13862094	-	13862094	13862094
Tungsten											
Ore	tonne	-	-	-	-	-	-	172921	9338246	36677818	36677818
Contained Wo <sub>3</sub> tonne											
Vanadium											
Ore	tonne	-	-	-	-	-	-	14884430	-	19384430	19384430
Contained V <sub>2</sub> O <sub>5</sub> tonne											
Vermiculite	tonne	-	-	-	28000	50520	15500	66658	-	162240	162240

Figures rounded off.

## STATE REVIEWS

Table -2 : Details of Exploration Activities in Karnataka, 2020-21

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq. km)	No. of boreholes	Meterage		
<b>GSI</b>							
<b>Chromium</b>							
Mandya	Anuksapura Kallenahalli	1:12500	-	-	-	30	Reconnaissance Survey (GH) was carried out for Cr-Ni-Cu with associated PGE and gold in this area. Large scale geological mapping (LSM) on 1:12500 scale was carried out to identify the zones of mineralisation for Cr-Ni-Cu with associated PGE and gold mineralisation in the investigated area. The exposed litho assemblages in the study area belong to Sargur group (Nagamangala Group) of rocks. It is mainly represented by meta-ultramafites with rock exposures of talc- tremolite-actinolite schist, peridotite and metapyroxenite and amphibolites. Chemical analytical results of 30 bedrock samples collected from Peridotite in Ichchalagatta area have shown the highest Cu values upto 369 ppm. In this area no high anomalous Cu values have been revealed. Ni values range from 10 ppm to 1477 ppm. Amphibolite Showed highest Ni values. Six samples have yielded the Ni values above 1000 ppm. Similarly, the bedrock samples have shown anomalous Cr values ranging from 10 to 2963 ppm. Peridotite and Ultramafic rocks of Ichchalaghatta area have yielded Cr values more than 2000 ppm. Petrographic studies of ultramafic rocks in the study area have shown plagioclase, hornblende, tremolite, chlorite, magnetite, pyrotite and pentlandite ore minerals.
<b>Gold</b>							
Haveri	Sidenur & Aralikatti area	-	-	-	-	23	Reconnaissance survey (G4) was carried out for Gold in these areas. Geologically, the area represent northern extension of Dharwar-Shimoga schist belt. The lithounits constitute intercalated sequences of meta-argillite/ greywacke with BIF, quartzite with felsic volcanic of Ranebennur Formation of Chitradurga Group. It is later intruded by acidic and basic intrusives. Meta-argillite/ greywacke forms the host

(contd)

## STATE REVIEWS

Table –2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Haveri	Shiggaon & Konankeri area	-	-	-	-	-	<p>rock for the other lithounits. Quartzite is the oldest litho-unit. It is light coloured, fine grained, hard, massive, often cherty in nature, foliated with iron staining. Meta-greywacke/ argillite show gradational contact relationship and often grades in shale or phyllite. BIF is represented by banded magnetite chert (BMC), banded ferruginous quartzite (BFQ) and banded magnetite quartzite (BMQ). It is exposed as linear, discontinuous bands characterised by alternate rhythmic layers of fine- grained quartzite, chert, magnetite or haematite and often traversed by several parallel or criss-cross quartz veins. Analytical results of 23 BRS samples shows Au values ranging from 25 ppb to 382 ppb. Analysis shows Au ranging from 25- 60 ppb in Nandihalli, 25-84 ppb in east of Kalgond and 28- 382ppb in BMC, south of Bisalhalli area. Analytical results of BRS samples from Kalgond show copper value of 1520 ppm.</p> <p>Reconnaissance survey (G4) was carried out for gold in these area. The investigated area is comprises of rocks of Archaean to Proterozoic ages. The Ranibennur Formation belonging to Archean age comprises by metagreywacke/chlorite-sericite schist sequence, Fe bearing muscovite quartz schist/tuff sequence and banded iron formation; while the rocks of Proterozoic age consist of younger intrusive like gabbro/dolerite dyke and quartz vein. The contacts between metagreywacke, chlorite-sericite muscovite schist and Fe bearing muscovite quartz schist are gradational. However, the contact between metagreywacke and BMQ is sharp. The Gangibhavi -Singapura BFQ band which is promising band shows encouraging Au values 265 ppb, 118 ppb, 625 ppb, 500 ppb and 1120 ppb obtained from BRS; 80 ppb, 100 ppb and 140 ppb from</p>

(contd)

## STATE REVIEWS

Table -2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							SS and 330ppb and 155ppb from PTS.
Haveri	Singapura block	1:1000	2	8	985	190	Preliminary exploration (G3) was carried out for gold in this area. A total of 2 sq. km area was covered by detailed mapping on 1:1000 scale with 107 cu. m trenching, 100 trench, 50 bedrock, 20 petrochemical and 20 petrology samples. In all 8 first level (60m vertical) inclined boreholes were drilled with a spacing of 100-200 m covering a total of 985 m drilling. Singapura block comprises Meta volcano-sedimentary rocks as meta-greywacke argillite, felsic volcanic, Banded Iron Formation (BIF) with presence of sulphides and later intruded by basic dykes and quartz veins. Outcrops of BIF band shows muscovite mica alteration, limonitisation and sulphide leaching stains. BIF shows presence of disseminated sulphides mainly pyrite within silica and iron rich layers. Drill core of meta-greywacke argillite shows presence of sedimentary structures as graded bedding, unsorted clast rich patches, clay clasts and soft sediment deformation structure like ball and pillow structure. Sulphide content in the mineralised zone varies from 0.1 % to 5%. Width of alteration and sulphide mineralisation zone in drill core varies from 0.5m to 1.5m. Alteration and sulphide mineralisation is traced by drilling over a strike length of 600m in block area. Chargeability value in the area varies from 2 to 11 mV/V, resistivity survey shows total variation from 100 to 2000 Ohm-m and total field magnetic value varies from 111 to 180nT. High Chargeability and low resistivity corroborates with linear BIF bands. Magnetic data of the block area shows discontinuous magnetic zones along strike of BIF bands. Magnetic anomalous zone is well corroborated with the resistivity and chargeability. The area shows a prominent D <sub>1</sub> deformation event which is represented by N20°W-S20°E (contd)

## STATE REVIEWS

Table -2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							trending foliation in meta-greywacke argillite and it is parallel to bedding in BIF. D <sub>2</sub> deformation is represented by folds in the BIF with N30°E-S30°W fold axis and D <sub>3</sub> is represented by E-W warps. 4 bedrock samples from sulphidic BIF analyzed Au value as 26, 36, 36 and 726 ppb. 1 trench sample analyzed 2.52 ppm Au. Base metal analysis of bedrock/trench sample analyzed Cu from 11 to 330 ppm, Zn from 10 to 221 ppm and Pb from 11 to 60 ppm in Singapura block.
Haveri	Dyamankoppa Block	-	2	-	1000	504	Preliminary exploration (G3) was carried out for gold in this block. Gold exploration is carried out in the Dyamankoppa block to assess the of gold potentiality of the rock along with the 2 sq. km detailed mapping, 102 cu. m trenching, 1000 m drilling, collection of 52 bedrock samples, 102 trench samples and 350 core samples. Dyamankoppa Block forms the part of Shimoga Schist Belt and exposes rocks of Ranibennur Formation of Chitradurga Group which includes metagreywacke-argillite, felsic volcanic, Banded Iron Formation, basic dykes and quartz vein. Width of the BIF in the area varies from 20 cm to 1 m. Sulphide specs are seen along the banding.
Chitradurga	Chikkenahalli-Kasavanahalli area	-	100	-	-	40	Reconnaissance survey (G4) was carried out for gold and associated mineralisation in this area. A total of 100 sq. km was mapped along with systematic sampling for study of petrography, mineral chemistry and mineralisation. Sheared granite gneiss (PGC-I), amphibolites (Javanahalli Group), metabasalt (Ingaldhalu and Hiriya Formation of Chitradurga Group), diorite, meta-gabbro/meta-pyroxenite, granodiorite- granite (JN Kote granitoid), argillite (chlorite-quartz phyllite/schist), strongly sheared Medikeripura granite, BIF, Chitradurga granite and younger intrusive (micro-gabbro, dolerite dykes, quartz reef/veins) are

(contd)



## STATE REVIEWS

Table –2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							exposed in the study area. During the mapping work, four hydrothermal alteration zones i.e. South-east of Kasavanahalli (North of JN Kote), North of Ennegere, East of Chikkenahalli and North of Pallvagere were mapped in study area. Hydrothermal alteration zone mapped at southeast of Kasavanahalli (north of JN kote) is extension of alteration zone established during FS 2019-20 and combined dimension is about 1.5 km long (NNW-SSE) and 450 to 800 m wide. Forty bedrock samples (15 during FS 2019-20 and 25 during FS 2020-21) collected from veins/veins and host granite in this zone has been analysed for gold and has yielded gold value as high as 15100 ppb (FS 2019-20). Highest gold value analysed from this zone during FS 2020-21 is 13600 ppb.
<b>Base Metal</b>							
Raichur	Machanur west block	-	-	-	-	60	General exploration (G2) was carried out for Copper and Gold mineralisation in block. The objective is to delineate the mineralised zone for copper and gold and estimate the resource in Machanur West block. The block is of 1 sq km area and is primarily soil covered with extensive agricultural fields. Regionally, the Machanur block forms part of the granitoid terrain belonging to the Closepet Granite suite of intrusive granites and granodiorites. These granodiorites are intrusive in Hutti Schist Belt. The study area is represented by brecciated and altered pink porphyritic granite and intrusive dolerite dyke. The mineralised zone in Machanur occurs in an ENE-WSW trending brittle fracture system stretching for about 5 km in length and 50-150 in width within pink porphyritic granite. The linear dolerite dyke is also mineralised when it is close to breccia zone. Hydrothermal alteration is intense and is represented by quartz-K-feldspar-hematite-chlorite-carbonate-epidote assemblages

(contd)

## STATE REVIEWS

Table -2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							developed in altered granite and dolerite. Sulphide minerals are noted in the form of dissemination, massive chunks, veins and fracture filling. Ore minerals noted in the zones are chalcopyrite, pyrite, bornite, covellite, native copper, chalcocite and minor cuprite. Chalcopyrite is the main ore of copper in the area followed by bornite, covellite, and native copper. The present G-2 block Machanur west block falls within the detailed mapped area. A total of 60 cu.m of trenching was completed and a total of 60 pitting/trenching samples were submitted. Out of the 60 samples results of 40 samples were received. Analytical results from one trench MCT-36 indicates value of 530 ppm Cu over 1m and trench MCT 32 indicates 0.1% Cu over 1m within the West block.
Raichur	Yerjanti area	1:12500	50	3	514.50	409	Reconnaissance survey (G4) was carried out for copper, gold and associated minerals. An area of 50 sq. km area has been mapped on 1:12500 scale along with 50 cu. m pitting & trenching and also 514.50m, scout drilling has also been achieved by drilling three scout boreholes. A total of 132 nos. of BRS, 61nos. of pitting & trenching samples, 50 nos. of soil samples and 166 nos. of core samples are collected. Three scout boreholes have achieved a total of 514.5m drilling. First and second scout boreholes (KRY-01& KRY-02) intersected three sulphide-bearing zones. Third Scout borehole (KRY-03) intersected one K-feldspar and iron oxide alteration zone and one chlorite, epidote, quartz and carbonate altered mafic rock. Actual mineral potential of the investigation area will be furnished after receiving all the analytical results. 132 nos. BRS are collected out of which 61 nos. of sample results are available and analysed 0.14 to 1.01% Cu.

(contd)

## STATE REVIEWS

Table –2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
<b>Platinum Group Elements (PGE)</b>							
Hassan	Ranganathaswamy Betta	-	-	6	749.49	380	Preliminary exploration (G3) was carried out for PGE in this area. The study area exposes lithounits belonging to the older greenstone remnants, and comprises of ultramafic and mafic rocks engulfed by migmatitised Peninsular Gneisses (PGC). The various lithounits exposed in the study area includes Chlorite Serpentine, Talc serpentine schist, Meta- gabbro, Titaniferous vanadiferous magnetite rock, Tremolite chlorite schist, Granite gneiss, Hornblendite (Amphibolite), Anorthosite, Gabbro /Pyroxenitic gabbro and quartz veins. During the course of work, a total of 1.93 sq. km area was covered by ground geophysical surveys viz. magnetic, resistivity and IP methods. Total of 749.49m drilling has been completed in six boreholes viz. KHNR-1, 2, 3 4, 5 & 6 in Ranganathaswamy Betta block. Before commencement of drilling, extensive trenching at 100m spacing is being carried out for delineation of continuous zone in the study area. 268 cu.m trenches were excavated and 305 trench samples were collected keeping the sample interval at 0.5m and 75 Nos. of bed rock sampling by chips from outcrop, channel/ groove were also collected for the PGE anlysis. 206 trench samples were submitted for PGE analysis at SR, Chemical lab and the results are awaited. The first three Borehole KHNR-1, 2 & 3 have been drilled as scout borehole based on the high surface values of trenches.
<b>Nickel</b>							
Chitradurga & Chikmangalur	Yaradakere and Patta Devarahalli	1: 12500	100	3	500	82	Reconnaissance survey (G4) was carried out for Nickel, Copper, Cobalt and PGE mineralisation between Yaradakere and Patta Devarahalli areas, Antarghatta Mafic-Ultramafic Complex, Chitradurga and Chikmangalur districts. The area of investigation forms the southeastern margin of Shimoga Schist Belt in Western Dharwar Craton (WDC) of Archaean age. Large Scale Mapping was carried out in 100 sq. km area

(contd)

## STATE REVIEWS

Table -2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							on 1: 12500 scale in part of Toposheet No. 57C/2. The lithounits present in the study area are amphibolite, meta-pyroxenite, talc- tremolite schist, serpentinite, migmatite gneiss, gabbro, dolerite dykes, pegmatite and quartz vein. The base metals analytical results have been received for 82 samples and the highest value for Cr values ranging from 710 ppm to 2.70% and Ni values ranging from 390 to 3100 ppm respectively.
Tumkur	Banasandra	-	-	-	-	22	Preliminary Exploration (G3) was carried out for Komatiite-Hosted Ni- PGE-Au Mineralisation in the Mafic-ultramafic rocks around Banasandra. The area under investigation comprises mainly ultramafic rocks of Bababudhan Group of Chitradurga Supergroup. The geochemical sampling and drilling results of Banasandra block have shown the Ni-Co enrichment in the shallow laterite-profile as well as in the deeper altered serpentinite. A few indications of primary sulphides have been identified in thin section samples of core samples. Few high anomalous chargeability clusters were identified along the western Komatiite contact during the Ground Geophysical survey. Anomalous zones have been verified and ground checked for any possible mineralisation. Identified zones with drilled width and nickel-cobalt contents in South Banasandra block are from BH. No. KTBS-1 Zone 1: 10.13m X (Ni: 0.58% & Co: 242 ppm); Laterite and saprolite, Zone 2: 7.45m X (Ni: 0.62% & Co: 387 ppm) in weathered serpentinite (with magnetite) and Zone 3, 5.6m X: (Ni: 0.59% & Co: 332ppm) associated with magnetite in showing rarely preserved spinifex and pillowed structures located NE and SE of Banasandra village. Identified zones with drilled width and nickel-cobalt contents in South Banasandra block are from BH. No. KTBS-1 Zone 1: 10.13m (contd)

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Table –2 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							X (Ni: 0.58% & Co: 242 ppm): Laterite and saprolite, Zone 2: 7.45m X (Ni: 0.62% & Co: 387 ppm) in weathered serpentinite (with magnetite) and Zone 3, 5.6m X: (Ni: 0.59% & Co: 332ppm) associated with magnetite in A sub block of 0.25 sq. km is identified in the South Banasandra block for resource estimation of supergene enriched (Lateritic) Ni-Co zones. Analytical results of 22 Soil/ Regolith samples show anomalous PGE values in 3 samples (100 to 232 ppb), indicating the possibility of PGE- enrichment in the weathering profile.
<b>Diamond</b> Tumkur	Ramagiri Nutimadugu area	-	740	-	-	163	Reconnaissance survey (G4) was carried out for primary source rocks for diamond in Ramagiri- Nutimadugu area of Eastern Dharwar Craton, Anantapur district of Andhra Pradesh and Tumkur district of Karnataka. Around 740 sq km area was covered under reconnaissance survey and 163 stream sediment samples were collected from favourable trap sites and processed for heavy mineral separation. The study of stream sediment sample revealed that the present area contains the heavy minerals like chromites, spinels, ilmenites, garnets, diopsides, epidotes, amphiboles, zircons, apatites, tourmalines, and sulphides. In southeastern part, near Kanaganakuntla village one zone of quartz tourmaline vein (approximate dimension of 1200 m x 200 m) is reported during the reconnaissance traverse for kimberlite which is intruded into PGC-II may be a potential zone for critical minerals like Tin and Tungsten.
<b>Karnataka State Mineral Corporation Magnesite and Dunite</b> Mysore	Karya village, Madanpura Post, Nanjanagud Taluka	1:2000	86.25Hect	-	-	-	About 204 Th tonnes of magnesite and about 3004 thousand tonnes of dunite reserves has been estimated in the ML area.

## STATE REVIEWS

**Production**

Gold ore, Iron Ore, Manganese ore, Limestone, and Magnesite are the important minerals produced in Karnataka State. The value of minor mineral's production is estimated as ₹ 1916 crores for the year 2020-21. There were 141 reporting mines in 2020-21 in case of MCDR of minerals. (Table-3).

**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, 2018-19 to 2020-21  
(Excluding Atomic Minerals)**

(Value in ₹ '000)

Mineral	Unit	2018-19			2019-20			2020-21 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
<b>All Minerals</b>		<b>141</b>		<b>100319538</b>	<b>148</b>		<b>100582716</b>	<b>141</b>		<b>118382249</b>
Bauxite	t	-	-	-	1	-	-	-	-	-
Chromite *	t	3	-	-	2	-	-	2	-	-
Gold Ore	t	-	563519	-	-	590704	-	-	447752	-
Gold	kg	4	1661	5233808	4	1724	6431034	4	1115	5422160
Iron Ore	'000t	54	29823	71114250	61	31392	67326043	65	34542	85430466
Manganese Ore	t	11	332162	2276289	9	336745	2194098	9	371046	2347159
Silver #	kg	-	214	7785	-	187	8066	-	120	7244
Graphite (r.o.m.) *	t	2	-	-	2	-	-	2	-	-
Kyanite	t	-	-	-	1	400	880	1	3780	7414
Limestone	'000t	62	34378	6103939	64	34165	6672035	54	33189	5965087
Limeshell	t	2	3538	10699	1	1017	3051	-	-	-
Magnesite	t	3	9108	56368	3	7198	48309	3	6061	39419
Vermiculite	t	-	-	-	-	-	-	1	-	-
Minor Minerals		-	-	15516400	-	-	17899200	-	-	19163300

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

*# Recovered at Raichur and Tumkur during refining of gold.*

*\* Only labour reported.*

**Table – 4 : Principal Mineral-based Industries**

Industry/plant	Capacity ('000 tpy)
<b>Abrasives</b>	
Grindwell Norton Ltd, Bengaluru.	NA
<b>Alumina</b>	
Hindalco Industries Ltd, Belagavi	350 (alumina) 40(paste) 0.090(Vanadium)
<b>Cement</b>	
ACC Ltd, Wadi (Wadi & Wadi New), Distt. Kalaburagi	5450
ACC Ltd, Kudithini, Ballari (G).	1100

(contd)

Table - 4 (contd)

Industry/plant	Capacity ('000 tpy)
ACC Ltd, Thondebhavi, Distt. Chikaballapur (G).	1660
Bagalkot Cement Industries Ltd, Distt. Bagalkot.	600
Chettinad Cement, Kallur, Distt. Kalaburagi.	2500
Dalmia Cement, Yadwad, Distt. Belagavi	4000 2600( Clinker)
Heidelberg Cement India Ltd, (Formerly Mysore Cements Ltd) Ammasandra, Distt. Tumakuru.	510
J. K. Cement Ltd, Muddapur, Distt. Bagalkot	3000

(contd)

## STATE REVIEWS

Table - 4 (contd)

Industry/plant	Capacity ('000 tpy)
JSW Cement, Vijaynagar, Distt. Ballari.	3200
Kesoram Industries, Vasavadatta Cement, Sedam, Distt. Kalaburagi	8565(OPC) 8565(PPC)
Kalaburagi Cement Pvt Ltd (formerly Viratsagar) Gulbargha, Distt. Kalaburagi	2750
Kalaburagi Cement Pvt Ltd Karchikhed, Chincholi	3500 2750 (Clinker)
Orient Cement Ltd.Itagi, Chittapur	3000
Ramco Cement Ltd, Mathodu, Distt. Chitradurga.	290
Shree Cement Ltd.Benekanahalli, Kodla Sedam, Kalaburagi	3000
Ultratech Cement, Raj Shree Cement, Malkhed, Distt. Kalaburagi.	6100
Ultratech Cement, Ginigera, Distt. Koppal (G).	1300
Orient Cement Chittapur, Kalaburagi	<b>3000</b>
<b>Ceramic</b>	
Ceramic Products Ltd, Khanapur, Distt. Belagavi.	NA
H&R Johnson (India) Ltd, Hubballi.	47.72
Murudeshwar Ceramics Ltd, Dharwad.	8.4 mill.sqm
The Mysore Spongware Pipes Potteries Ltd, Solandavanahalli, Bengaluru.	NA
<b>Chemical</b>	
Solaris Chem Tech Industries Ltd, Bhinga, Distt. Uttara Kannada.	59.4 (caustic soda), 52.3 (Cl), 133.7 (HCl) 24.0 (H <sub>3</sub> PO <sub>4</sub> )
Magnesium & aallied Product Hurugalavadi , Mandya	3 (Magnesium Carbonate) 1.875 (Magnesium Oxide)
Shivam Minerals , Honaga Belgaum	4.6(Magnesium Carbonate) 4.6 (Magnesium Oxide)
<b>Fertilizer</b>	
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)
<b>Iron &amp; Steel</b>	
JSW Steel Ltd, Tornagallu	9200 (pellets)
Sandur Distt. Ballari	12100 (pig iron) 12000 (crude/liquid steel) 12950 (sinter) 4618(Coke)
	(contd)

Table - 4 (contd)

Industry/plant	Capacity ('000 tpy)
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)
	36(-----)
<b>Pellets</b>	
BMM Ispat, Danapur, Distt. Ballari.	2400 (pellets)
KIOCL, Mangaluru	3500 (pellets) 6700 (conc.)
Minera Steel & Power Pvt. ltd., Sandur	600
SLR Metalliks Ltd. Narayan Devera Kera Hagari Bommanahalli	343.2(Sinter)
Xindia Steel, Koppal.	800 (pellets)
<b>Pig Iron</b>	
Uni-Metal Ispat Ltd, Ballari.	75
Kalyani Ferrous Ind. Ltd, Koppal	500(Sinter) 289.6
Kirloskar Ferrous Industries Ltd, Bevinahalli, Distt. Koppal.	500 (Sinter) 720
Mukund limited, Ginigera, Koppal	500 (Sinter) 410.3
<b>Sponge Iron</b>	
Agrawal Sponge & Energy (P) Ltd, Kuduthini, Distt. Ballari.	90
Balakundi Premium Steels Pvt. Ltd, Halakundi, Distt. Ballari.	34
Bellary Ispat (P) Ltd, Halakundi Distt. Ballari.	52.5
Ballary Steel & Alloys Ltd, Ballari.	60
Benaka Sponge Iron Pvt. Ltd, Belagal, Distt. Ballari.	84
BMM Ispat Ltd., Danapur	600 2400 (pellet)
BRU Industries, Anekal Taluk	1.2 (cast Iron)
Dhruvdesht Metasteel Pvt. Ltd, Hirebaganal, Distt. Koppal.	72
Divya Jyoti Steel Ltd, Taranagar, Distt. Ballari.	30
Gayatri Metals Pvt Ltd, Belagal, Distt. Ballari.	5000
Hindustan Calcined Metal Pvt. Ltd., Janekunnte Ballari	60
Jairaj Ispat Limited Belagal village	60
Haryana Steel and Power, Shanthigrama, Distt. Hassan.	35
	(contd)

## STATE REVIEWS

Table - 4 (contd)

Industry/plant	Capacity ('000 tpy)
Hare Krishna Metallics Pvt Ltd, Hire Baganal, Distt. Koppal.	144
Hospet Ispat Pvt. Ltd, Allanagar Bagnal Road, Distt. Koppal.	60
Hothur Ispat Pvt. Ltd, Veniveerapur, Distt. Ballari.	300 TPD
Minera Steel & Power Pvt. Ltd, Yerabannahally, Distt. Ballari.	120
M.S.Metals & Steels PVT. Ltd. Hirebagnal Koppal	105 109.5(TMT Bars)
Noble Distillaries & Powers Ltd, Sirivar, Distt. Ballari.	200 TPD
PGM Ferro Steel Pvt. Ltd, Hariganadani, Distt. Ballari.	60
Popuri Steels Ltd, Halakundi, Distt. Ballari.	30
Padmawati Ferrous Metal, Chikantpur Sandur, Ballari.	150
Rayon Steel Pvt Ltd, Veniverapur, Distt. Ballari.	60
Rengineni Steel Pvt. Ltd, Halakundi, Distt. Ballari.	25.5
Shree Venkateshwara Sponge & Power Ltd, Halakundi, Distt. Ballari.	60

(contd)

Table - 4 (concl'd)

Industry/plant	Capacity ('000 tpy)
Yashshvi Steel & Alloys Ltd, Halakundi, Distt. Ballari.	30
<b>Ferro Alloys</b>	
Ani Smelters Yaradakatta, Hariyur	1.5
Dandeli Steel & Ferro Alloys Ltd, Dandeli.	6
Padmawati Ferrous Metal, Chikantpur Ballari	30 5 (Ferro - manganese) 5 (Silico-manganese) 2 (Ferro-silicon)
Sandur Manganese & Iron Ore Ltd, Mariyammanahalli Hospet	36 (SiMn)
<b>Refractories</b>	
T. S.Ranganath & Company, Keshavapurahuliyar, Chikkanayakanahalli	1.0 (Clay tiles & Block)
S.R. Chemicals & Ferro Alloys Ltd, Honaga, Distt. Belagavi.	0.3
Thermit Alloys Pvt. Ltd, Shivamogga.	1.2
<b>Petroleum Refinery</b>	
MRPL, Mangaluru.	15000

*G; Grinding Unit*

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