

STATE REVIEWS



Indian Minerals Yearbook 2021

(Part- I)

60th Edition

**STATE REVIEWS
(West Bengal)**

(ADVANCE RELEASE)

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

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WEST BENGAL

Mineral Resources

West Bengal is the principal holder of country's apatite resources. It is said to possess 57% apatite and 14% china clay resources of the country. Important minerals that occur in the State are: **apatite** in Purulia district; **coal** in Bardhaman, Bankura, Birbhum, Darjeeling, Jalpaiguri & Purulia districts; **china clay** in 24-Parganas, Bankura, Birbhum, Bardhaman, Hoogly, Midnapur & Purulia districts; and **fireclay** in Bankura, Birbhum, Bardhaman & Purulia districts.

Other minerals that occur in the State are **barytes, copper, gold, kyanite, pyrite &**

titanium minerals in Purulia district; **dolomite** in Jalpaiguri district; **felspar** in Bankura & Purulia districts; **granite** in Bankura, Birbhum & Purulia districts; **lead-zinc** in Darjeeling district; **limestone** in Bankura & Purulia districts; **manganese ore & sillimanite** in Midnapur district; **quartz/silica sand** in Bankura, Hoogly & Purulia districts; and **tungsten & vermiculite** in Bankura district (Table-1). Reserves/resources of coal and lignite along with details of coalfields/districts are provided in Table-2 & Table -3.

Exploration & Development

Exploration activities were reported by GSI during the year 2020-21 and are provided in Table-4.

Table – 2 : Reserves/Resources of Coal as on 1.4.2021: West Bengal

(In million tonnes)				
Coalfield	Proved	Indicated	Inferred	Total
Total	15199	13296	4597	33092
Raniganj	14781	7117	3680	25578
Barjora	201	–	–	201
Birbhum	218	6179	901	7298
Darjeeling	–	–	15	15

Source: Coal Directory of India, 2020-21.

Table –3 : Reserves/Resources of Lignite as on 1.4.2021: West Bengal

(In million tonnes)				
District	Proved	Indicated	Inferred	Total
Total	–	1.13	2.80	3.93
Bardhaman Rakshitpur, Gaurangapur-Bankati	–	0.29	1.82	2.11
Birbhum Mahalla, Dhobbanpur & Djara	–	0.84	0.98	1.82

Source: Coal Directory of India, 2020-21.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2020: West Bengal

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		Total (B)
Apatite	tonne	-	-	-	499149	-	120000	8845250	521175	666646	10652220	10652220
Copper												
Ore	'000 tonnes	-	-	-	-	-	-	113	-	-	113	113
Metal	'000 tonnes	-	-	-	-	-	-	2.09	-	-	2.09	2.09
Gold												
Ore												
(Primary)	tonne	-	-	-	-	-	-	-	-	12833333	12833333	12833333
Metal												
(Primary)	tonne	-	-	-	-	-	-	-	-	0.65	0.65	0.65
Kyanite	tonne	-	-	-	-	-	-	-	26520	-	26520	26520
Lead-Zinc												
Ore	'000 tonnes	-	-	-	-	-	-	3371	335	-	3706	3706
Lead metal	'000 tonnes	-	-	-	-	-	-	130.07	10	-	140.07	140.07
Zinc metal	'000 tonnes	-	-	-	-	-	-	130.42	13	-	143.42	143.42
Limestone	'000 tonnes	-	-	-	-	-	7104	15482	22120	-	44706	44706
Manganese ore	'000 tonnes	-	-	-	-	-	-	-	200	-	200	200
Pyrite	'000 tonnes	-	-	-	-	-	-	-	2500	-	2500	2500
Sillimanite	tonne	-	-	-	-	-	-	-	1653000	-	1653000	1653000
Titanium	tonne	-	-	-	-	-	-	-	2279000	-	2279000	2279000
Tungsten												
Ore	tonne	-	-	-	-	-	-	173063	40000	-	763802	763802
Contained												
WO ₃	tonne	-	-	-	-	-	-	80.84	1000	-	1530.84	1530.84
Vermiculite	tonne	-	-	-	-	-	-	490	5076	-	5566	5566

Figures rounded off.

STATE REVIEWS

Production

During the year 2020-21 production of Coal, Natural Gas (ut.) and Sulphur was reported from West Bengal.

The value of minor mineral's production was estimated at ₹ 1831 crore for the year 2020-21. Mineral production in West Bengal from 2018-19 to 2020-21 is furnished in Table -5

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, important mineral-based industries located in the State with their total installed capacities are furnished in Table - 6.

Table – 4 : Details of Exploration Activities in West Bengal, 2020-21

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Manganese							
West Medinipur	Chaukisar-Pahar Labani, Pathachakri, Sarisabasa, Odolchua, Mahulbani & Balichua	1:12500	100	-	-	239	Reconnaissance survey (G4) for manganese and associated sulphide mineralisation in and around Chaukisar-Pahar area, West Medinipur district. An area of 100 sq. km was covered by LSM on 1:12500 scale in and around Chaukisar Pahar, Labani, Pathachakri, Sarisabasa, Odolchua, Mahulbani and Balichua areas in Jhargram District along with collection of 154 nos. of BRS, 50 nos. of PTS, 10 nos. of PCS and 25 nos. of petrological samples.
Gold							
Kalimpong	Samthar - Deoralipit area	1:12500	100	-	-	205	Reconnaissance survey (G4) to search auriferous veins in Samthar-Deoralipit area Kalimpong District. An area of 50 sq. km were mapped on 1:12500 scale alongwith collection of 100 nos. of BRS, 10 nos. of PCS, 25 nos. of PS, 20 nos. of PS and 50 nos. of PTS. The attitude of schistosity plane varies broadly from 290° to 310° with an average northerly dips of 40° to 50°. Sulphides present in the mapped area are mainly poly-metallic and shows complex mineralogy with both primary (symmetrically and rhythmically crucified veins both of quartz and tourmaline) and replacement textures (comb and vug structures). Six old workings was identified in the mapped area. One mineralized zone of 400 m lateral extension has also been demarcated in Yangmakum-Paserbu village area. Malachite, azurite, crystals of pyrite, arsenopyrite, REE (suspected) has also been observed. Analytical results of very few bed

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STATE REVIEWS

Table -4 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							rock samples revealed that one sample collected from Deorali pitarea showed gold (Au) value of 1.52 ppm and Copper (Cu) value of 9278 ppm.
Darjeeling	Munsang & adjoining areas	1:12000	50	-	-	328	Reconnaissance survey (G4) for gold and associated mineralisation in Munsang and adjoining areas, Darjeeling District. A total of 50 sq km area had been covered by LSM (1:12500 scale) along with collection of 328 nos. of samples from different media. Quartzite, phyllite and mica schist are the major lithounits of Gorubathan subgroup and variations of these lithounits are also studied. Thin bands of amphibolite are noted within the quartz mica schist in few places. All the lithounits are traversed by two generations of quartz veins. Though mineralisation is noted in both quartz veins, foliation parallel quartz veins/partings contain relatively more incidences than later quartz veins. Disseminated sulfide mineralisation (pyrite and chalcopyrite grains) are noted in foliation parallel quartz veins within grey quartzite-phyllite sequence near Anaconda Kholai, Lower Munsong-Barmek road section, Naksha-Barek road section, Mungerjung Upper Munsong link road, Barek-Kashyong road section, Sukhe Khola and Tumlong Khola sections. Pyrite and areseno-pyrite specks are noted in micaceous quartzite near Cross Hill Road section, in Tumlong Khola section and also near Kashyong village.
Base Metal							
Darjeeling	Takdah-HamBasti area	-	50	-	-	160	Reconnaissance Survey (G4) for base metal and associated minerals around Takdah-HamBasti area, Darjeeling District, West Bengal. A total of 50 sq. km area has been mapped and 160 samples from different media have been collected. Two alteration zones have been noticed within mapped area. One is located near village Chegra Basti in which a meta basic body is altered and contains pyrite and fine grains

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STATE REVIEWS

Table –4 (concl'd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
REE & RM							of chalcopyrite. This alteration zone is 10 meter in length and 1.5 meter wide. Another one is located near Tista Valley Tea Garden in which quartzite is altered and limonite and goethite has been noticed within this zone. Fine grains of pyrite, chalcopyrite and bornite have been observed. This zone is 35 meter in length and 5 to 6 meters width.
Purulia	Kalapathar- Raghudih Block	-	-	11	732	160	Preliminary exploration (G3) for REE & RM mineralisation in Kalapathar-Raghudih Block, Purulia District. A total of 732m drilling were out in 11 nos of boreholes (WBKR-1 to WBKR-11) along with 166 cu. m of pitting & trenching, 103 nos of channel sampling. The block exposes biotite granite gneiss, porphyroclastic granite gneiss (PGG), hornblende biotite granite gneiss (HBG), calc silicate, khondalite, quartz and pegmatite veins. REE mineralisation is mainly restricted within the pegmatite veins intersecting the host lithology of porphyroclastic granite gneiss. Exposure of this mineralised vein bearing porphyroclastic granite gneiss is very scanty and the mineralised veins are mainly oriented in NW-SE to NE-SW direction showing a wide variation in their trend. The mineralised pegmatite veins show variation in composition. Overall, they can be identified in four different categories, viz. (a) Quartzo feldspathic vein ± baryte, sulphide, (b) Green coloured epidote and amphibole bearing veins ± barite, sulphide, and tourmaline, (c) Course grained, comparatively thicker pegmatite vein with myrmekite texture at places, and (d) barite vein. The PGG intersected in boreholes show variation in clast sizes. The REE bearing veins have been intersected from 16.4m - 28m, 37.63m – 62.3m, 69.32m – 87.9m in borehole WBKR-3 and 14.63m-14.8m, 18.00m -18.18m, 30.5-38.38, 44.30m in borehole WBKR-4. Borehole WBKR-5 intersected

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STATE REVIEWS

Table -4 (concl'd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							the veins from 9.35m – 61.30m. In borehole WBKR-6, the veins occur from 18.15m -23.95m, 27m – 33.08m and 43m – 44.95m. Borehole WBKR-7 intersected the veins from 16.2m – 18m, 38.2m and 40.2m – 44.5m. WBKR-8 shows occurrences of the veins from 16.15m – 21m and 35.5m – 36m. In case of borehole WBKR-9, they occur at 17.90m and 53.40m. Good concentration of veins has been intersected in boreholes WBKR-10 and WBKR-11. WBKR-10 intersected the veins from 13.5m- 15.86m and 18.09m – 51.5m and the borehole WBKR-11 intersected them from 13.10m – 60m. No vein has been intersected in borehole WBKR-2.
Tungsten Purulia	Balarampur- Kana- Pakhi area	-	100	-	-	238	Reconnaissance survey (G4) for W, Sn and associated mineralisation was carried out in Balarampur-in Balarampur-Kana-Pakhi Pahar-Pakhi Pahar area. A total area of 100 sq. km was covered by LSM and 100 nos. soil/ stream sediment samples, 102 nos. BRS, 11 nos. PCS and 25 nos. PS were collected. The area forms the part of the North Singhbhum Mobile Belt (NSMB). The major lithounits are granitic gneiss, quartzite, tuff, garnetiferous mica schist, granite, amphibolite. This lithounit is traversed by innumerable pegmatite veins. Most of the pegmatite veins contain tourmaline. The orientation of pegmatite veins varies from NE-SW to E-W with an average width of 40-50 cms and length approximately 50-70 m. In the area, mineralisation is indicated by surface metallic stains, specks of sulphides, ferruginisation, brecciation, presence of old workings. Sulphide mineralisation is mainly noticed in ferruginous cherty quartzite (silicified zones), tuffaceous rock. No surface indications of Sn-W mineralisation have been noticed so far. Bed rock samples are collected mostly from cherty quartzite, gneiss, pegmatites and granite on the basis of high specific gravity.

STATE REVIEWS

**Table – 5 : Mineral Production in West Bengal, 2018-19 to 2020-21
(Excluding Atomic Minerals)**

(Value in ₹'000)

Mineral	Unit	2018-19			2019-20			2020-21 (P)		
		No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}
All Minerals		1		20714222	-		21391866	-		18310969
Coal	'000t	-	33136	-	-	33136	-	-	34596	-
Natural Gas (ut.) ⁺	m c m	-	350	-	-	306	-	-	307	-
Apatite	t	1	-	-	-	-	-	-	-	-
Sulphur #	t	-	43627	-	-	35566	-	-	56118	-
Minor Minerals @		-	-	20714222	-	-	21391866	-	-	18310969

*Note: The number of mines excludes fuel and minor minerals.**\$ Excluding the value of Fuel minerals. + Coal Bed Methane**# Recovered as by-product from oil refinery.**@ Figures for earlier years have been repeated as estimates because of non-receipt of data.***Table – 6 : Principal Mineral-based Industries**

Industry/plant	Capacity ('000 tpy)
Asbestos Products	
Everest Building Products Ltd, Kolkata	NA
Ramco Industries Ltd, Haratara, Distt Paschim Medinipur	NA
UAL Industries Ltd, Tungadhawa, Distt Paschim Medinipur	150
Abrasives	
Carborandum Universal Ltd, Gopalpur	NA
K.L.Thirani & Co. Ltd, Kolkata	NA
Satya Narayan Roller Floor Mill Pvt. Ltd, Chandur Tarkeshwar	MOG-303 0.35 MOG-302 0.40 MOG-M2 0.40 MOG-220 0.20 Fine-0.15
Cement	
ACC Ltd (Damodar Cement), Purulia (G)	750
Ambuja Cement Ltd, Sankrail, Distt Howrah (G)	2400
Ambuja Cement Ltd, Farakka, Distt Murshidabad (G)	1250
Birla Corporation Ltd (Durgapur Cement Works & Durga Hitech Cement), Durgapur (G)	2300
Burnpur Cement, Asansol, Distt Burdwan (G)	300
Century Textiles, Sonar Bangala Grinding Unit, Distt Murshidabad	1500
Emami Cement Ltd, Panagarh Burdwan	2000
Emami Cement Ltd, Kotagram, Ausgram-II	2000
JSW Cement, Salboni, P Medinipur	2400

(contd)

Table - 6 (contd)

Industry/plant	Capacity ('000 tpy)
Lafarge Cement Pvt. Ltd, Mejia (G)	1650
Maa Chandi Cement Bamunara Burdwan,	330
NUVOCO Vistas Corp. Ltd, Amdang, Bakura	1650
OCL India Ltd, , Bengal Work Mednapore	1350
Ramco Cement (formerly Madras Cement), Kolaghat, Distt Purba Medinipur (G)	950
Shristi Cement Mangalpur	360
Swasata Cement Ltd, Purulia	1500
Ultra-Tech Cement Works, Dhankuri Hoogly, West Bengal	1600
Ultra-Tech Cement Ltd, WBCW (G) Burdwan	1400
Ceramics	
WBCDC Ltd, Kolkata	0.18
Chemical	
Hindustan Heavy Chemicals Ltd, Khardah, Distt 24-Parganas	14.8 (caustic soda) 6 (Cl), 9.8 (HCl) 4.5 (ferric alum) 18.7 (H ₂ SO ₄)
Alchrome Chemical Industries Kalyani, Kalyani Industrial Estate	1.2(sodium bicarbonate) 0.6(sodium sulphate)
Electrodes	
GEE Ltd, Kandua	18
Graphite India Ltd, Kolkata	NA
Radix Arc Pvt. Ltd, Dangadighila	4
Shield Arc Equipment Pvt. Ltd, Rasapunja	2.5

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STATE REVIEWS

Table - 6 (contd)

Industry/plant	Capacity ('000 tpy)
Fertilizer	
Tata Chemicals Ltd, Haldia	675 (DAP)
Tata Chemicals Ltd (Phosphatic Division), Haldia, Medinipur	160 (SSP)
Teesta Agro Industries Ltd, Rajganj, Jalpaiguri	165 (SSP)
Jay Shree Chemicals & Fertilizers, Khardah, 24 Parganas	132 (SSP) 62.70 (H ₂ SO ₄)
The Phosphate Company Ltd, Rishra, Hoogly	112.8 (SSP)
Sai Fertilizers Pvt. Ltd, Dewanmara, W. Medinipur	132 (SSP)
Flux	
Priyanka Tradelink Pvt. Ltd	0.60
Glass	
Hindustan National Glass & Industries Ltd, Rishra	680 TPD
Iron & Steel	
Durgapur Steel Plant, SAIL, Durgapur	3009 (sinter) 2400 (pig iron) 2200 (crude/liquid steel) 13.0NH ₄ So ₄
IISCO Steel Plant, SAIL, Burnpur, Distt Bardhaman	2695(pig iron) 2500 (crude/liquid steel) 3800 (sinter)
Alloy Steel Plant, SAIL, Durgapur	234 (crude/liquid steel)
Rohit Ferrotech Ltd, Bishnupur	100 (stainless steel) 71.4 (ferroalloys)
Rashmi Metaliks Ltd, Gokulpur, West Midnipore	1800 (pellets) 580 (sinter)
Pig Iron	
Electrosteel Castings Ltd, Khardah	250 365 (sinter)
Jai Balaji Industries Ltd, Banskopa Distt Bardhaman	428.7 608 (sinter)
Kajaria Iron Castings Ltd, Durgapur.	110 326 (sinter)
KIC Metallics Ltd, Raturia Angadpur, Durgapur	336 (sinter) 165(pig iron)
Orissa Metallic Pvt. Ltd, Mathurakismat, Gokulpur	1370 (pellets) 300 (pig iron)
Shyamraipur Pachmi medinipur Unit -I & Dhekia & Chaksonadhar Pachmi Medinipur Unit II	329.72 (sponge Iron)
Rashmi Metallics Ltd, Shyamraipur, Gokulpur, Medinipur	600 (sinter) 900 (pellets) 180 (pig iron)
Tata Metaliks Ltd, Kharagpur.	345 528 (sinter)

(contd)

Table - 6 (contd)

Industry/plant	Capacity ('000 tpy)
Tata Metaliks Ltd, Gokulpur, Maheshpur	600
Neo Metalliks Ltd, Gopalpur, Durgapur	300 (Sinter) 187.9
Sponge Iron	
Adhunik Corporation Ltd, Angadpur, Durgapur.	72
Ankit Metal & Power Limited Jorehira Chhatna	210 600 (pellet)
Aryavrata Steel Pvt. Ltd, Lohamelya Distt West Medinipur.	36
C. P. Sponge Iron Pvt. Ltd, Raturia Angadpur, Industrial Area Durgapur	60
C. P. Ispat Pvt. Ltd, G.T. Road Bhirigee	60
Divya Jyoti Sponge Pvt. Ltd, Nandanpur	60
Electrosteel Castings Limited, Haldia	60
Howrah Gasses Ltd, Raniganj, Distt Bardhaman.	60
Jai Balaji Sponge Ltd, Raniganj, Mangalpur Distt Bardhaman. I	105
Jai Balaji Sponge Ltd, Banskopa Distt Bardhaman. IV	120
Kunj Bihari Steel Pvt. Ltd, Jamuria Nandi	30
M. B. Sponge & Power Limited, Hijalgola Jamuria	60
Maithan Steel & Power Ltd, Bora, Bonra	60
Rashmi Ispat (Pvt.) Ltd, Jhargram Distt W. Medinipur	150
Rashmi Cement Ltd, Jetusole Jhargram Distt W. Medinipur	492.7 33 (Ferroalloys)
Ravindra Enterprise Pvt. Ltd, Digha, Purulia	30
Rishabh Sponge Ltd, Barjora, Bankura	90
SRS Sponge Pvt. Ltd, Dantia Balrampur	15
Satyam Iron & Steel co. Pvt. Ltd, Asansol	60
Sen Ferro-alloys Pvt. Ltd, Dejudi	15
Shyam Sel Ltd, Dewabdighi, Burdwan	100
Shyam Steel Industries Ltd, Anandpur, Durgappur	79
Sunil Sponge Iron Ltd, Kolkata	115
Ferroalloys	
Kartik Alloys Ltd, Durgapur	10.7
Bhaskar Shrachi Alloys Ltd, Durgapur	40
Corporate Ispat Alloys Ltd (Abhijit Group), Durgapur	74
Dimension Steel and Alloys Pvt. Ltd, Bakura	38
Gagan Ferro Tech. Ltd, Jamuria	138.6
Jai Balaji Industries Ltd, Durgapur (JBIL Group)	106
Jai Balaji Industries Ltd, Unit IV, Banskopa	76.5
Jai Balaji Industries Ltd, Mangalpur	30.1
Maithan Alloys Ltd, Kulti Bardhaman	94.6

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STATE REVIEWS

Table - 6 (contd)

Industry/plant	Capacity ('000 tpy)
Modern India Con-Cast Ltd, Bishnupur, Distt Bankura	75
Modern India Cone-Cost Ltd, Haldia	100
Nilkanth Ferro Ltd, Radhamadhavpur	39.9 (silico - manganese)
Rohit Ferro-Tech Ltd, Haldia	100.6
Shyam Ferro Alloys Ltd, Burdwan	100 (50 MVA)
Shyam Ferro Alloys Ltd, Durgapur	100 (50 MVA)
Shri Vasavi Industries Ltd, Bishnupur, Distt Bankura	45
Srinivasa Ferro Alloys Ltd, Durgapur, Distt Bardhaman	84.2
Shri Goyatri Minerals Pvt. Ltd, Bishnupur, Distt Bankura	24
Refractory	
Alcoa-ACC Industrial Chemicals Ltd, Kalatalahat	10
Barakar Refractories (P) Ltd, Barakar, Distt Bardhaman	3.6

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Table - 6 (concl'd)

Industry/plant	Capacity ('000 tpy)
Kero Rajendra Monolithics Ltd, Banjora	NA
National Refractories Prop. Snowtex Udyog Ltd, Salanpur	43.2
Saswat International Ltd, Kulti, Distt Bardhaman	NA
Vesuvius India Ltd, Kolkata	96.5
Coke Oven Batteries	
IISCO Burnpur Works, Burnpur, Distt Bardhaman	1084
Petroleum Refinery	
IOCL, Haldia	7500
TiO₂ Pigment	
Kolmak Chemicals Ltd, Kalyani, Distt Nadia	4.8

(G): Grinding units.

Note: Data, not readily available for fertilizer and cement Industries on respective websites, is taken from Indian Fertilizer Scenario, FAI Statistics, and Survey of Cement Industry & Directory.