Indian Minerals Yearbook 2022

(Part- I)

61st Edition

STATE REVIEWS (Meghalaya)

(ADVANCE RELEASE)

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MINISTRY OF MINES
INDIAN BUREAU OF MINES

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MEGHALAYA

Mineral Resources

Coal and limestone are the only major minerals mined in Meghalaya. **Coal** occurs in Mikir Hills, Khasi Hills, Jaintia Hills and Garo Hills districts. Resources of **limestone** occur in West Garo Hills, East Khasi Hills, West Khasi Hills and Jaintia Hills districts. Other mineral occurrences are **apatite** in Jaintia Hills district; **china clay** in East Garo Hills & West Garo Hills, Jaintia Hills & East Khasi Hills districts; **copper, lead-zinc, silver** & **titanium minerals** in East Khasi Hills district; **felspar** & **rock phosphate** in East Garo Hills & Jaintia Hills districts; **fireclay** in East Khasi Hills & West Garo Hills districts; **granite** in West Khasi Hills district; **iron ore (magnetite)** in East Garo Hills district; **quartz** & **silica sand** in East Garo Hills, West Garo Hills & East Khasi Hills districts; and **sillimanite** in West Khasi Hills district (Table -1). The various coalfields and their reserves/resources in the State are furnished in Table-2.

Exploration & Development

Details of exploration activities conducted by GSI during 2021-22 are furnished in Table - 3.

Production

Limestone was the important mineral produced in Meghalaya during the year 2021-22. The value of minor minerals' production was estimated at Rs. 46 crore for the year 2021-22.There were 16 reporting mines in 2021-22 in the state for limestone (Table-4).

Mineral-based Industry

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

Table – 2 : Reserves/Resources of Coal as on 1.4.2023 : Meghalaya

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	**89**	**17**	**471**	**576**
West Darangiri	65	–	60	125
East Darangiri	–	–	34	34
Balphakram-Pendenguru	–	–	107	107
Siju	–	–	125	125
Langrin	10	17	106	133
Mawlong Shelia	2	–	4	6
Khasi Hills	–	–	10	10
Bapung	11	–	23	34
Jayantia Hills	–	–	2	2

Source: *Coal Directory of India, 2022-23.*

Table – 1 : Reserves/Resources of Minerals as on 01-04-2020: Meghalaya

Mineral	Unit	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						
Apatite	Tonne	-	-	-	-	-	-	-	-	-	1300000	-	1300000	1300000
Bauxite	000 Tonnes	-	-	-	-	-	-	-	-	-	4300	-	4300	4300
Copper														
Ore	000 Tonnes	-	-	-	-	-	-	-	-	880	-	-	880	880
Metal	000 Tonnes	-	-	-	-	-	-	-	-	9	-	-	9	9
Iron Ore (Heamatite)	000 Tonnes	-	-	-	-	-	-	-	-	-	225	-	225	225
Iron Ore (Magnetite)	000 Tonnes	-	-	-	-	-	-	-	-	-	3380	-	3380	3380
Lead-Zinc Ore														
Ore	000 Tonnes	-	-	-	-	-	-	-	-	880	-	-	880	880
Lead metal	000 Tonnes	-	-	-	-	-	-	-	-	16.5	-	-	16.5	16.5
Zinc metal	000 Tonnes	-	-	-	-	-	-	-	-	14	-	-	14	14
Limestone	000 Tonnes	133298	50979	66766	251043	57639	104791	16452	697286	4167752	17819716	720309	23583945	23834988
Rock Phosphate	Tonne	-	-	-	-	-	-	-	-	-	1311035	-	1311035	1311035
Sillimanite	Tonne	14400	-	68112	82512	-	-	-	-	-	55807	-	55807	138319
Silver														
Ore	Tonne	-	-	-	-	-	-	-	-	880000	-	-	880000	880000
Metal	Tonne	-	-	-	-	-	-	-	-	19.8	-	-	19.8	19.8
Titanium	Tonne	-	-	-	-	-	-	-	-	3345000	-	-	3345000	3345000

Figures rounded off.

Table –3 : Details of Exploration Activities in Meghalaya, 2021-22

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Base Metals							
East Khasi Hills	Barapani Shear Zone in and around Mawlyndep – Mawmin - Nongbsap villages	1:12500	50	-	-	168	Large scale mapping of 50 sq. km area on 1:12,500 scale has been carried out along with pitting / trenching of 50 Cubic m, 118 bedrock sampling and 50 soil sampling in the surrounding of Barapani Shear Zone. Bedrock samples from Carbonaceous phyllite, calc-silicate, meta-volcanoclastic and quartz veins have shown >100ppm as values and maximum upto 2954ppm in quartz vein. 7 sample collected from carbonaceous phyllite and calc-silicate rock have shown >250ppm Zn values and maximum upto 3028 ppm Zn in one sample from calc-silicate rock. Two samples from carbonaceous phyllite showing TiO_2 concentration 4.47 and 5.06 % whereas two samples from laterite shows 7 and 7.17 % TiO_2. 35 samples collected from meta-volcanoclatsic, meta-rhyolite, calc-silicate, quartz vein and carbonaceous phyllite are showing Li content >20 ppm and maximum upto 57 ppm in meta-volcanoclatic, 29 bedrock samples collected from meta-volcanoclastic, carbonaceous phyllite, and calc-silicate shows Cs content >10 ppm and maximum upto 23.31 ppm in metavolcanoclastic and 23.01 ppm in carbonaceous phyllite. Based on petrographic study, sulphide mineralisation has been observed in the form of pyrite, arsenopyrite, pyrrhotite, covellite, chalcocite and chalcopyrite. Scanning electron microscopic (SEM) shows, arsenopyrite, pyrrhotite, pyrite, colevllite, galena, chalcopyrite and LREE bearing carbonate and phosphate phases.

(contd)

Table – 3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Tungsten							
East Khasi Hills, Rhi-boi and West Jaintia Hills	Kyrdem area	1:12500	50	-	-	-	Large scale mapping (1:12,500) of 50 sq.km was carried out in the Kyrdem area and in and around the contact between Shillong Group of rocks the Kyrdem Pluton. The study area is occupied by lithounits of gneissic rock of AMGC, intercalation of phyllite and micaceous quartzite, tuffaceous phyllite, amphibolite and calc silicate rock of Shillong Group, gabbroic pyroxenite of Khasi Greenstone belt and granitic rocks of Kyrdem Pluton. First time the calc silicate band has been reported in the Lumsyntung area. Three phases of deformation were recorded in the calc silicate rock. Sulphide mineralisation in the area is mainly confined to calc-silicate, micaceous grey quartzite and amphibolite. The mineralisation, manifested by disseminated sulphide occurrences, is predominantly enriched to conformable set of quartz veins that occur along the gently dipping prominent foliation in the calc silicate rocks. The structural control of mineralisation appears to be by the 2nd deformation event that gave rise to the gently dipping foliation-parallel silicification related to the early phase of deformation of the schistosity/ gneissosity. At Mawtari and Klew village scheelite mineralisation which is associated with sulphide minerals has been observed along the fracture plane developed in the ferruginous porphyritic granite. The control of mineralisation may be due to the hydrothermal fluid which has interacted or remobilised the wall rock along the fracture plane and given rise to the formation of tungsten bearing minerals like scheelite and wolframite. These N-S fracture planes may be

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Table – 3 (concld)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							developed due to the reactivation of the Barapani shear zone or it may be part of Umgot lineament which is passing through the Pluton and even though it is far from N-S Nongcharam fault but sympathetic to it. The Ca, Fe and Mg laden hydrothermal fluid might have given rise to the formation of scheelite and wolframite. The pyrite and chalcopyrite minerals might be formed by hydrothermal activity. The potassic alteration evidences by petrographic studies of granite suggest that the plagioclase is converted to potassic feldspar, also sericitisation of plagioclase feldspar is indicating the alteration feature. The tungsten value in 10 samples is 358ppm, 225ppm, 302 ppm and 152 ppm, 227ppm,132ppm, 48 ppm 31ppm, 30ppm, 13.3ppm respectively in the porphyritic granite at Mawtari and Klew village. Lithium values of 208 ppm, 131ppm, 112 ppm, 83 ppm, 78 ppm has been indicated from amphibolite and pegmatite vein intruded into it.

Table - 4 : Mineral Production in Meghalaya, 2019-20 to 2021-22 (Excluding Atomic Minerals)

(Value in ₹ '000)

Mineral	Unit	2019-20			2020-21			2021-22 (P)		
		No. of mines	Qty	Value$	No. of mines	Qty	Value$	No. of mines	Qty	Value$
All Minerals		**19**	**-**	**3431243**	**19**	**-**	**3148600**	**16**	**-**	**3331595**
Limestone	'000t	19	7248	2988280	19	6029	2689713	16	6399	2872708
Minor Minerals @		-	-	442963	-	-	458887	-	-	458887

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

@ Figures for earlier years have been repeated as estimates because of non-receipt of data for the year 2021-22.

Table – 5 : Principal Mineral-based Industries

Industry/plant	Capacity ('000 tpy)
Cement	
Adhunik Cement (Subsidiary of Dalmia Cement), Distt Jaintia Hills	1500
Amrit Cement Industries Ltd, Khleriat, Distt Jaintia Hills	3000
Cement Manufacture Co. Ltd, Lumshnong, Distt Jaintia Hills	792
DCBL Meghalaya Cements Ltd, Thangskai, Narpuh Distt Jaintia Hills	1500
Green Valley Industries, Nongsning, Jowai,Distt Jaintia Hills.	1000
JUD Cement Ltd, Norpuh, Distt Jaintia Hills	500
Mawmluh Cherra Cements Ltd, Cherrapunjee, Distt East Khasi Hills	185
Meghalaya Cements Ltd, Thangskai, Distt Jaintia Hills	860
Megha Technical & Engineering (P) (MTEPL), Lumshnong, Distt Jaintia Hills	700
Hills Cement, Jaintia Hills	1000
RNB Cement, East Khasi	400
Ferroalloys	
Jaintia Ferro Alloys Pvt. Ltd, Byrnihat.	6
Maithan Alloys Ltd, Ribhoi	15 MVA
Maithan Alloys Ltd, RajaBagan	28
Nalari Ferro alloys Pvt Ltd, Norbhog	11
Khasi alloys Pvt. Ltd, EPIP Meghalaya	4.1
Iron & Steel	
Jai Kamakhya Alloy Pvt. Ltd	815 tpd

Source: *Data from respective websites of cement industries as well as Survey of Cement Industry & Directory.*