Indian Minerals Yearbook 2021

(Part- I)

60th Edition

STATE REVIEWS (Meghalaya)

(ADVANCE RELEASE)

GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES

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MEGHALAYA

Mineral Resources

Coal and limestone are the only major minerals mined in the State. **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 and various agencies during 2020-21 are furnished in Table - 3.

Production

Limestone was the important mineral produced in Meghalaya during the year 2020-21. The value of minor minerals' production was estimated at ₹ 721 lakh for the year 2020-21. There were 19 reporting mines in 2020-21 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 1.4.2021 : 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, 2020-21.*

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, 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							
Tungsten							
East Garo Hills	Nengkera block	1:50000	275	-	-	-	Reconnaissance Survey (G4) was carried out for Tungsten and associated mineralisation in this area. The study area comprises the rocks of Archean to Proterozoic gneisses and older supracrustals belong to Assam Meghalaya Gneissic Complex (AMGC), younger granitoids and Tertiary cover sediments. The pegmatite veins have been found intruding the granite gneiss and porphyritic granite. Pegmatite veins vary in length from 1 cm to 10 meters and varies in width from 0.5 to 1.5m. Younger granitoids are found as porphyritic as well as non-porphyritic. Analytical results from pegmatite veins are showing some promising zone for tungsten mineralisation with value ranging upto 500 ppm. Maximum values were recorded around Nengkera, Bolsagre, Nengkera, Agalgiri area. Lithium value of 116 and 120 ppm are reported from two samples of clay horizons within Tertiary sedimentary rocks.
West Garo Hills & South Garo Hills	Tura area	-	-	-	-	-	Reconnaissance survey (G4) was carried out in this area. The study area falls at the SW fringe of Shillong plateau and comprises Assam Meghalaya Gneissic Complex (AMGC) or Basement Gneissic Complex, traversed by dolerite dykes. Precambrian gneisses (biotite gneiss, granite gneiss and augen gneiss) intruded by alkali-feldspar granite, basic intrusive mainly dolerite, pegmatite & quartz veins. Few porphyritic basic intrusive suspected as a lamprophyre or lamproite at Northeast and east of Nawalgre village. Analytical results shows Tungsten (W) values ranging from 4.44 to 157.81 ppm of W, with an average of 86.47 ppm of W; Li values ranges from <5 to 44 ppm and the REE values ranges from 11.26 to 427.77 ppm with an average of 150.85 ppm. Pegmatite veins are showing some promising zone for tungsten mineralisation (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		
							with value ranging up to 500 ppm. Maximum values were recorded around Nengkera Bolsagre, Nengkera Agalgiri area. Lithium value of 116 ppm and 120 ppm are reported from two samples of clay horizons within tertiary sedimentary rocks.
West Khasi Hills	Manai-Mairang Block	-	-	-	-	3	Reconnaissance Survey (G4) was carried out in this area for Tungsten Mineralisation. Surface indications of mineralization are in the form of disseminated scheelite grains and greisen veins. Scheelite grains are observed under UV light in a 25 cm thick and 3 m long quartz vein in foliated granite towards northeast of Mairang village. Another 10 cm thick and 1 m long quartz vein in foliated granite exposed northeast of Mairang village also contains disseminated scheelite grains. Greisen veins are occurring as intrusions within foliated granite and quartz mica schist of AMGC. Sulphide mineralisation in the form of pyrite, chalcopyrite and galena are noticed in the quartzite near Mawmaram village. Maximum tungsten value observed is 1524 ppm in a 15 cm thick and 3 m long smoky quartz vein near Umthied Bynther village. Three stream sediment samples collected from Umthied Bynther, Wahlakhaw and Mawshut villages also shows tungsten value above 1000 ppm.
REE East Khasi Hills, West Khasi hills & Ri-bhoi		-	1:50000	275	-	-	Reconnaissance survey (G4) for REE and other associated minerals in parts of East Khasi Hills, West Khasi Hills &Ri-bhoi districts. Regolith characterisation by generating material maps using remotely sensed data was used for identification and classification of regolith which was be followed by field validation. Based on the outcome of the material maps using ASTER data, a total of 275 sq km regolith cover map was prepared on 1:50,000 scale. Heavy mineral separation of soil horizon was done and accessory phases like monazite,

(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		
							zircon and xenotime were identified in microscope for regolith over AMGC but no heavies, only minor quantity zircon, apatite was obtained from regolith over granite. SEM analysis was done to obtain the clay morphology which showed mostly kaolinite. Some grains of kaolinite have REE adsorbed in its lattice. EPMA analysis of bedrock showed mostly bastnasite (REE carbonate) followed by monazite, xenotime and REE-sphene. Since the REE concentration in the Wallang-Nongspung area are mostly interpreted to be due to ion adsorption in clay, a block has been delineated for further exploration. Sulphide mineralisation in the form of dissemination of pyrite was observed near Kyrdem village in the homophanous Kyrdem granite.

Table - 4 : Mineral Production in Meghalaya, 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		**21**		**3022550**	**19**		**3060355**	**19**		**2748747**
Sillimanite	t	1	24	168	-	-	-	-	-	-
Limestone	'000t	20	7195	2950307	19	7248	2988280	19	6028	2676672
Minor Minerals[@]		-	-	72075	-	-	72075	-	-	72075

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

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

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.*