

STATE REVIEWS



Indian Minerals Yearbook 2020

(Part- I)

59th Edition

STATE REVIEWS
(Meghalaya)

(ADVANCE RELEASE)

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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 2019-20 are furnished in Table - 3.

Production

Limestone was the important mineral produced in Meghalaya during the year 2019-20.

The value of minor mineral's production was estimated at ₹ 721 lakh for the year 2019-20.

There were 18 reporting mines in 2019-20 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 1.4.2020 : Meghalaya

(In million tonnes)				
Coalfield	Proved	Indicated	Inferred	Total
Total	89.04	16.51	470.93	576.48
West Darangiri	65.40	–	59.60	125.00
East Darangiri	–	–	34.19	34.19
Balphakram-Pendenguru	–	–	107.03	107.03
Siju	–	–	125.00	125.00
Langrin	10.46	16.51	106.19	133.16
Mawlong Shelia	2.17	–	3.83	6.00
Khasi Hills	–	–	10.10	10.10
Bapung	11.01	–	22.65	33.66
Jayanti Hills	–	–	2.34	2.34

Source: Coal Directory of India, 2019-20.

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Table – 1 : Reserves/Resources of Minerals as on 01-04-2015: Meghalaya

Mineral	Unit	Reserves				Remaining Resources				Total resources (A+B)	
		Proved STD111	Probable		Total (A)	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
			STD121	STD122							
Apatite	tonne	-	-	-	-	-	1300000	-	1300000	1300000	
China clay [#]	'000 tonnes	-	-	-	-	1200	76242	5167	88875	88875	
Copper											
Ore	'000 tonnes	-	-	-	-	-	880	-	880	880	
Metal	'000 tonnes	-	-	-	-	-	9	-	9	9	
Felspar [#]	tonne	-	-	-	-	-	37449	-	37449	37449	
Fireclay [#]	'000 tonnes	-	-	-	-	-	10999	-	10999	10999	
Granite ^{##}											
(Dimension Stone)	'000 cum	-	-	-	-	-	-	286467	286467	286467	
Iron ore											
(Haematite)	'000 tonnes	-	-	-	-	-	225	-	225	225	
Iron ore											
(Magnetite)	'000 tonnes	-	-	-	-	-	3380	-	3380	3380	
Lead-Zinc											
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	135836	87904	1822	225562	68457	39289	46200	14048758	17704116	
Quartz-											
Silica sand [#]	'000 tonnes	-	-	-	-	-	177	-	6906	7083	
Rock											
Phosphate	tonne	-	-	-	-	-	1311035	-	1311035	1311035	
Sillimanite	tonne	-	-	-	-	-	55807	-	55807	55807	
Silver											
Ore	tonne	-	-	-	-	-	880000	-	880000	880000	
Metal	tonne	-	-	-	-	-	19.8	-	19.8	19.8	

Figures rounded off.

Declared as Minor Minerals vide Gazette Notification dated 10.02.2015.

Minor Mineral before Gazette Notification dated 10.02.2015.

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Table –3 : Details of Exploration Activities in Meghalaya, 2019-20

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI Iron ore West Khasi Hills	Nongdom- Langtor area	1:4000	0.7	-	-	119	Preliminary exploration (G3) for Iron in the Banded Iron Formation in this area has been carried out by detailed mapping. The objective of the study was to explore the entire length of the banded magnetite rock (BMR) body as well as associated sillimanite mineralisation. A total of 0.8 sq km of detailed mapping on 1:2000 scale were carried out with the help of Total station along with collection of 50 BRS, 04 petrological samples & 07 OM samples, 10 PS samples, 48 nos PTS with 90 cu. m of pitting-trenching done and the modified targets were achieved. Also, mapping for 0.7 sq km was done on 1:4000 scale with the help of GPS, where geophysical anomalies were reported during geo-magnetic survey. The litho-units exposed in the area were mainly magnetite and garnet bearing ferruginous quartzite, garnet sillimanite schist and gneiss, intruded by later quartz veins exhibiting concordant and discordant relationship with country rock. Thin and discontinuous iron bands of thickness 1–3 mm were observed within the magnetite and garnet-bearing ferruginous quartzite. Chemical analyses result of pitting and trenching showed Fe ₂ O ₃ values ranging from 0.73% to 83.38% and Al ₂ O ₃ values ranging from 2.36% to 31.35%, whereas chemical analyses result of bedrock samples showed Fe ₂ O ₃ values ranging from 4.77% to 67.14%. Magnetic anomaly showed a total variation of 1,755 nT from -407 nT to 1,348 nT. The general trend of the anomaly contours was seen in E-W direction. The available magnetic data does not give any information on depth perception of the prominent anomaly zones obtained from the qualitative interpretation. There is lack of exposure of prominent Banded Magnetite Quartzite bands in the area. Hence, the drilling component was dropped.

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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		
PGE, Ni., Cr							
East Khasi and West Khasi Hills	Mawpyut area	1:12500	50.0	-	-	18	Reconnaissance survey (G4) for PGE, Ni, Cr around Mawpyut area has been carried out by mapping of a total area of 50 sq km on 1:12500 scale. The study area exposed granitic gneiss of Assam Meghalaya gneissic complex, quartzite of Shillong Group, mafic-ultramafic rocks, such as, gabbro, ijolite, olivine clinopyroxenite, microdiorite of Mawpyut mafic-ultramafic complex and sandstone of Shella Formation of Jaintia Group. Chemical analysis result of 18 BRS and 5 stream sediments samples have been received so far. The Au value were found to range from 100 to 410 ppb. Value of Au showed some encouraging values in Gabbroic rock. Some of the values of Au in BRS samples collected from Gabbroic rocks showed 240 ppb, 260 ppb, 300 ppb, 350 ppb and 410 ppb. Value of PGEs have also been received in which Pd & Pt values ranged from <10 to 25 ppb and <5 to 17 ppb.
PGE, Ni,REE							
West Jaintia hills	North-east of Mawpyut	1:1000	2.2	04	475.30	-	Preliminary exploration (G3) for PGE, Ni, REE and associated minerals in this area has been carried out by detailed mapping which involved an area of 2.2 sq km on 1:1000 scale at 1 km NE of village Mawpyut. A cumulative length of 475.30 m has been drilled in four boreholes. The lithounits delineated in the area comprised olivine clinopyroxenite, olivine gabbro, peridotite (lherzolite/wehrlite), ijolite, cherty breccia, lithomarge, Shillong Quartzite and Lower Sylhet Sandstone units. The alkaline phase of Ijolite rock was reported for the first time within the block. A tentative sulphide-bearing mineralised zone has been demarcated at right bank of Mynkjai Nala with a length of 800–1,000 m and width of 80–120 m within the pyroxenite and

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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		
							gabbro. The surface and sub-surface samples showed Pd value ranging from <10–35 ppb; Pt <5–28 ppb, Ir <3– 35, Ru 9–122 & Rh <3 ppb; Cr ranged from 871 to 4,569 ppm; Ni 110 ppm to 3,000 ppm. The Au values ranged from <50 to 310 ppb. The SEM studies revealed that the sulphides have encouraging amounts of Au grains (3-8) and 1-2 grains of PGE seen over the olivine clino-pyroxenite and peridotite samples of surface and the core samples of Borehole MJMT-1.
REE							
East khasi Hills, West khasi hills & Ri-bhoi		-	-	-	-	-	Reconnaissance survey (G4) for REE and other associated minerals in parts of this district was carried out. The item was taken up to assess the REE and other associated minerals in the regolith developed over AMGC and granitoids and the work component included regolith mapping, section measurement and collection of bedrock samples, petrochemical sampling and petrological samples. The analytical results received so far indicated the values of total REE in bedrock samples of Wallang-Nongspung area ranging from 339.21 to 1224.79 ppm (excluding Sc and Y) with an average of 651.83 ppm. In the C-horizon of soil the TREE value ranged from 1,525.92 to 3,572.77 ppm (excluding Sc and Y) with an average of 2,763.18 ppm and in B-horizon from 482.62 to 2,553.47 ppm (excluding Sc and Y) with an average of 1,609.94 ppm.
Ri-bhoi	In and around Bymihar area	1:12500	50.0	1.5	398.0	190	Reconnaissance Survey for REE and associated mineralisation in and around this area was carried out by LSM. The investigation included Large-Scale Mapping (1:12500 scale) of 50 sq km area along with collection of 100 bedrock samples, 25 petrochemical samples, 25

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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		
							petrological samples, 40 stream sediment samples and 10 samples of XRD. Besides, this 50 cu. m pitting and trenching and 398 m drilling in 15 boreholes were also carried out. About 0.24% Ba and 0.14% Cr and 0.1% Sr and 700 ppm REE were found within diorite of Umprikhola. Approximate 1,064 ppm REE was recorded from granite gneiss near Nongki area. About 445 ppm Zn value was recorded from sulphide-bearing cordierite metapelite of Tandu area and 2,098 ppm Yttrium value was recorded in pink granite intruded within cordierite metapelite of Umdot area.
Lithium and associated REE & RM							
East Khasi Hills	Umlyngpung block	1:12500	50	-	-	-	Reconnaissance survey for lithium and associated REE & RM mineralisation in Umlyngpung Block, East Khasi Hills district, Meghalaya (G4) was carried out. Mapping of 50 sq km area on 1:12,500 was carried out to map the different pegmatite and aplite veins intruding into the granite. The different mineral assemblages observed in the pegmatite veins: K-feldspar (orthoclase and some albite), quartz, muscovite, and fair amount of biotite and tourmaline. Microcline has also been observed under the microscope. The only lithium bearing mineral that can be identified in the field was tourmaline. The analytical results showed maximum value for the lithium as 78 ppm. Lithium values ranged from 20 to 64 ppm in grey porphyritic granite and aplite. Pitting and trenching were done across the veins, to assess the continuity and most importantly to study if the veins had any lithium mineral phases.
Tungsten							
West Khasi Hills	Manai-Mairang Block	1:12500	50	-	-	-	Reconnaissance Survey(G4) for Tungsten mineralisation in Manai-Mairang Block, West Khasi Hills District, Meghalaya was carried out on LSM of 50 sq km

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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		
							<p>in 1:12500 scale. The different lithounits observed are quartz mica schist, calc silicate and foliated granite of Assam Meghalaya Gneissic Complex (AMGC), quartzite of Shillong Group and amphibolites of Khasi Greenstone. Pegmatite and quartz veins, the target zone of mineralisation are intruded along and across the foliation plane of quartz mica schist, calc silicate rock and foliated granite mostly trends in NNE-SSW directions. Few N-S and NW-SE trending pegmatites are also present in quartz mica schist and foliated granite near Manai and Nongbri villages. Thickness of quartz veins and pegmatites varies from 5 cm to 2 m. The surface indications of mineralisation are observed in the form of greisens veins, boron metasomatism and hydrothermal alterations. Quartzmuscovite- tourmaline greisen transecting pelitic schists observed at Manai village have a thickness of 25 cm and shows bluish fluorescence under UV light. 0.8 to 1.3 m thick quartz-muscovite greisen is developed at the contact of pelitic schist and granite towards 1.7 km north of Mawiong village. Towards 1.5 km northeast of Thapbulong village, greisenisation is observed at the vicinity of a pegmatite vein containing large K-feldspar ranging size from 2 to 3 cm, quartz, muscovite and biotite. The greisenisation is evidenced by the presence of detached clumps of tourmalines. Chemical analytical results of 79 samples were received so far. Maximum values of W, Sn, Mo, Li, Ta, Nb, Y, Hf, Cu, Pb, Zn and TREE from the available chemical analytical results of bed rock samples show 17.98 ppm, 81 ppm, 15 ppm, 79 ppm, 37.15 ppm, 159 ppm, 488 ppm, 18 ppm, 101 ppm, 737 ppm, 228 ppm and 1418 ppm respectively.</p>

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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		
Limestone							
East Jaunties Hills	Lamarsiang block	1:4000	3.0	21	-	-	General exploration for (G2) limestone in Lamarsiang block, Litang valley, East Jaunties hills District, Meghalaya was carried out with a detailed mapping on 1:4000 scale of 3.0 sq km with 5m contour interval in the study area. The macro/mega foraminifera fossils within the Upper Sylhet Limestone are Nummulites, Assilina, Alveolina, Discocyclina; bivalves such as Pecten. Algal mats are very common in the limestone. At many places in Upper Sylhet Limestone; the density of microfossils is so high that it resembles like Coquina. A horizon of 15-20 m thick Assilina and spindle shaped Nummulites rich acme zone are observed in all the boreholes just above the contact with Upper Sylhet Sandstone. The thick limestone deposit and its fossil assemblage indicate deposition under a stable, shallow, inner-shelf marine environment. 957.45 m of drilling have been completed in the Lamarsiang Block under G-2 stage of exploration. A total of 9 nos. of Boreholes have been drilled so far out of 12 nos. of proposed Boreholes. Borehole core sample were analysed for determining the grade of limestone. The limestone grade is of Cement (Portland and Blendable) and SMS (OH) grades.
East Jaintia Hills	Khaidong- Shnongrim block, Litang Valley	1:4000	2.5	10	-	-	General Exploration (G2) for Limestone in Khaidong-Shnongrim Block, Litang Valley, East Jaintia Hills District, Meghalaya was carried out on a total area of 2.5 sq km of covered under detailed mapping on 1:4000 scale and 1250.03 m was drilled covering 10 boreholes. In Khaidong-Shnongrim block, the Upper Sylhet Limestone is the target horizon for exploration which has an average thickness of 99.53 m. During detailed mapping, grey fossiliferous limestone of the

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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		
							Upper Sylhet Limestone of Shella Formation and alternate sequence of thin units of shale-sandstone-marl of Kopili Formation were recorded in the block. In Khaidong-Shnongrim block, the Upper Sylhet Limestone which is the target horizon for exploration has thickness varying from 43.1m to 127.58m. 491 nos. of core samples were analysed for determining the grade of limestone. The CaO, MgO and SiO ₂ percentage varies from 27.1 to 53.92%, 0.88 to 7.17% and 0.22 to 17.34% respectively. The limestone grade is of Cement (Portland and Blendable) and SMS (OH) grades. The total area considered for resource estimation is 1.69 sq km. The total resource of limestone in Khaidong-Shnongrim block yields a net resource of 359.35 million tonnes by rectangular method which includes 52.89 million tonnes of Cement (Blendable/Beneficial) grade, 164.09 million tonnes of Cement Portland grade and 142.35 million tonnes of SMS (OH) grade. On the basis of nature and quantum of work carried out in Khaidong-Shnongrim Block, the reserve comes under 'Indicated Mineral Resource' 332 category under UNFC classification.
East Jaintia Hills	West of Mynthlu block, Litang Valley	1:4000	-	-	-	-	General exploration (G2) for limestone in South- West of Mynthlu Block, Litang Valley, East Jaintia Hills districts, Meghalaya was carried out. The item was taken up to assess the potentiality of different grades of limestone. Detailed Geological Mapping on 1:4000 scale was carried out along with 628.6 m drilling meterage was drilled out of 1000 m by March, 2020. The analytical results received so far shows CaO value between 30% and 48.35% and MgO between 3.30 and 0.98% and SiO ₂ from 14.95 to 4.17%. The limestone falls in cement Portland grade, cement blendable grade and beneficial grade.

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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		
Bauxite and REE							
West Khasi Hills	Wahrinong	1:12500	12	-	-	-	G4 stage reconnaissance survey for aluminous laterite/lateritic bauxite and REE in Wahrinong area and a G2 stage general exploration for aluminous laterite/lateritic bauxite and REE in north east of Rambrai block, West Khasi Hills district involved mapping of 12.0 sq km. on 1:12500 scale, collection of few samples in Wahrinong area and detailed mapping of 0.2 sq km in Rambrai block. Both the projects were dropped due to law & order problem in the study area.
Iron							
West Khasi Hills	Nongdom- Langtor	1:2000	0.8	-	-	-	Preliminary exploration for iron in the Banded Iron Formation in Nongdom-Langtor area, West Khasi Hills district involved detailed mapping of 0.8 sq km of on 1:2000 scale, mapping of 0.7 sq km on 1:4000 scale, collection of 50 BRS, 04 petrological samples and 07 OM samples, 10 PS samples, 48 PTS and 90 cu. m of pitting- trenching. Chemical analyses result of pitting and trenching showed Fe ₂ O ₃ values ranging from 0.73% to 83.38% and Al ₂ O ₃ values ranging from 2.36% to 31.35%, whereas chemical analyses result of bedrock samples showed Fe ₂ O ₃ values ranging from 4.77% to 67.14%.
		1:4000	0.7	-	-	-	
REE							
East Khasi Hills, - West Khasi Hills & Ri-bhoi		-	-	-	-	-	G4 stage reconnaissance survey for REE and other associated minerals in parts of East Khasi Hills, West Khasi Hills & Ri-bhoi districts was taken up to assess the REE and other associated minerals in the study area. The survey comprised regolith mapping, section measurement and collection of different types of samples. The analytical results indicated total REE in bedrock samples of Wallang -Nongspung area ranging from 339.21 to 1,224.79 ppm (excluding Sc and Y) with an average of 651.83 ppm. In the C-horizon of soil, the TREE value

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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		
							ranges from 1,525.92 to 3,572.77 ppm (excluding Sc and Y) with an average of 2763.18 ppm and in B-horizon it varies from 482.62 to 2,553.47 ppm (excluding Sc and Y) with an average 1,609.94 ppm.
Lithium and associated REE & RM							
East Khasi Hills	Umlyngpung block	1:12500	50	-	-	-	Reconnaissance survey for lithium and associated REE & RM mineralisation was carried out in Umlyngpung block, East Khasi Hills district by mapping of 50.0 sq km area on 1:12,500 to map the different pegmatite and aplite veins intruding into the granite. The only lithium bearing mineral that could be identified in the field was tourmaline. The analytical results showed lithium values ranges from 20 to 64 ppm in grey porphyritic granite and aplite with maximum value of 78 ppm. Pitting and trenching were done across the veins to assess the continuity and most importantly to study if the veins have any lithium mineral phases.
Tungsten							
West Khasi Hills	Manai-Mairang block	1:12500	50	-	-	-	G4 stage reconnaissance survey for tungsten mineralisation in Manai-Mairang block, West Khasi Hills district involved large scale mapping of 50.0 sq km area on 1:12500 scale. Pegmatite and quartz veins, the target zone of mineralisation were intruded along and across the foliation plane of quartz mica schist, calcsilicate rock and foliated granite. Thickness of quartz veins and pegmatites varies from 5 cm to 2 m. The surface indications of mineralisation were observed in the form of greisens veins, boron metasomatism, etc. Quartz-muscovite-tourmaline greisen transecting pelitic schists observed at Manai village have a thickness of 25 cm and shows bluish fluorescence under UV light. Quartz- muscovite greisen of 0.8 to 1.3 m thick is developed at the contact of pelitic schist and

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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		
							granite towards 1.7 km north of Mawiong village. Towards 1.5 km northeast of Thapbulong village, greisenisation is observed at the vicinity of a pegmatite vein containing large K-feldspar ranging size from 2 to 3 cm, quartz, etc. Maximum values of W, Sn, Mo, Li, Ta, Nb, Y, Hf, Cu, Pb, Zn and TREE from the chemical analytical results of bed rock samples showed 17.98 ppm, 81 ppm, 15 ppm, 79 ppm, 37.15 ppm, 159 ppm, 488 ppm, 18 ppm, 101 ppm, 737 ppm, 228 ppm and 1418 ppm, respectively.
PGE, Ni, Cr	East Khasi Hills, Mawpyut West Jaintia Hills block	1:12500	50	-	-	23	During G4 stage reconnaissance survey for PGE, Ni, Cr around Mawpyut area, East Khasi and West Jaintia Hills district, a total area of 50.0 sq m on on 1:12500 scale was mapped. Chemical analysis result of 18 BRS and 5 stream sediments samples have shown Au values ranges from 100 to 410 ppb. Value of Au in gabbroic rock showed encouraging values. Au value in BRS samples varies from 240 ppb to 410 ppb. Value of Pd & Pt ranges from <10 to 25 ppb and <5 to 17 ppb, respectively. During G3 level preliminary exploration for PGE, Ni, REE and associated minerals in Northeast of Mawpyut, West Jaintia Hills district, an area of 2.2 sq km mapped on 1:1000 scale in NE of Mawpyut village and a cumulative depth of 475.30 m was drilled in four boreholes. A tentative sulphide bearing mineralised zone within the pyroxenite and gabbro was demarcated at right bank of Mynkjai Nala for a length of 800-1000 m with width of 80-120 m. The surface and sub-surface samples yielded the Pd value ranges from <10 - 35 ppb; Pt <5 - 28 ppb, Ir<3 - 35, Ru 9 - 122 & Rh <3 ppb; Cr ranges from 871 to 4569 ppm; Ni 110 ppm to 3000 ppm. The Au values ranges from <50 to 310 ppb.

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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		
Limestone							
Litang valley	Lamarsiang block	-	-	-	-	-	A G2 level general exploration for limestone in Lamarsiang block, Litang valley was carried out. A horizon of 15-20 m thick nummulites rich acme zone was observed in all the boreholes. Based on the chemical analysis results of borehole core sample, the limestone is of cement (Portland and Blendable) and SMS (OH) grades.
Litang valley	Khaidong- Shnongrim block	-	-	-	-	-	A G2 level general exploration for limestone in Khaidong-Shnongrim block, Litang valley was carried out. The Upper Sylhet limestone was the target horizon for exploration which has thickness varying from 43.1m to 127.58 m with an average thickness of 99.53 m. The CaO, MgO and SiO ₂ varies from 27.1 to 53.92%, 0.88 to 7.17% and 0.22 to 17.34%, respectively. The limestone is of Cement (Portland and Blendable) and SMS (OH) grades. The total area considered for resource estimation is 1.69 sq km. The total resource of limestone over an area of 1.69 sq km in Khaidong-Shnongrim block estimated at about 359.35 million tonnes which includes 52.89 million tonnes of Cement (Blendable/Beneficial) grade, 164.09 million tonnes of Cement Portland grade and 142.35 million tonnes of SMS (OH) grade.
Litang valley	South-West of Mynthlu block	-	-	-	-	-	A G2 level general exploration for limestone in south-west of Mynthlu block, Litang valley was carried out with an objective to assess the potentiality of different grades of limestone in the study area. The analytical results yielded CaO value between 30% and 48.35% and MgO between 3.30 and 0.98% and SiO ₂ from 14.95 to 4.17%. The limestone falls in cement portland grade, cement blendable grade and beneficial grade.
Directorate of Mineral Resources,							
Limestone							
Eest Khasi hills	Nongtri Near Lawbah	-	-	1	17.05	200	-

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Table – 3 (concl'd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
East Jaintia hills	Ummat Lakadong	1:50000	10.03	-	-	20	-
Quartz							
South West Khasi Hills	Nongtynger- Langsohkhlam near Phlangdiloin	1:50000	9.5	2	-	52	-
Sillimanite							
West Khasi Hills Riangdo	Thaiem, Mawkhar & Mawkdep area	1:50000	9.0	-	-	29	-

Table - 4 : Mineral Production in Meghalaya, 2017-18 to 2019-20
(Excluding Atomic Minerals)

(Value in ₹ '000)

Mineral	Unit	2017-18			2018-19			2019-20 (P)		
		No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}
All Minerals		19		2935103	21		3022550	19		3038389
Coal	'000t	-	1529	-	-	-	-	-	-	-
Sillimanite	t	1	459	3374	1	24	168	-	-	-
Limestone	'000t	18	6599	2859654	20	7195	2950307	19	7259	2966314
Minor Minerals @		-	-	72075	-	-	72075	-	-	72075

*Note: The number of mines excludes Fuel and Minor minerals.**\$ Excludes the value of Fuel minerals.**@ Figures for earlier years have been repeated as estimates because of non-receipt of data.*

Table – 5 : Principal Mineral-based Industries

Table – 5 (Contd.)

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

(contd)