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(Part- I)

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STATE REVIEWS (Rajasthan)

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GOVERNMENT OF INDIA
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RAJASTHAN

Mineral Resources

Rajasthan is the richest state in terms of availability and variety of minerals in the country and produces about 50 different minerals along with minor minerals during 2019-20. Rajasthan is the sole producer of lead & zinc ores, selenite and wollastonite. Rajasthan was the sole producer of garnet (gem) till 2004-05. Almost entire production of silver in the country comes from Rajasthan. The State is a major producer of copper ore/conc., limestone, ochre, phosphorite/rock phosphate and talc/soapstone/steatite. The State is also an important producer of marble of various shades. Makrana area is the world famous centre for marble mining.

The State possesses substantial share of the total resources of potash (94%), lead & zinc ore (89%), wollastonite (88%), silver ore (88%), gypsum (82%), ochre (81%), bentonite (75%), fuller's earth (74%), diatomite (72%), felspar (66%), marble (63%), asbestos (61%), copper ore (54%), calcite (50%), talc/steatite/soapstone (49%), ball clay (38%), rock phosphate (31%), fluorite (29%), and tungsten (27%).

Important minerals that are found to occur in the State are: **asbestos (amphibole)** in Ajmer, Bhilwara, Dungarpur, Pali, Rajsamand & Udaipur districts; **ball clay** in Bikaner, Nagaur & Pali districts; **barytes** in Alwar, Bharatpur, Bhilwara, Bundi, Chittorgarh, Jalore, Pali, Rajsamand, Sikar & Udaipur districts; **calcite** in Ajmer, Alwar, Bhilwara, Jaipur, Jhunjhunu, Pali, Sikar, Sirohi & Udaipur districts; **china clay** in Ajmer, Barmer, Bharatpur, Bhilwara, Bikaner, Bundi, Chittorgarh, Dausa, Jaipur, Jaisalmer, Jhunjhunu, Kota, Nagaur, Pali, Sawai Madhopur & Udaipur districts; and **copper** in Khetri belt in Jhunjhunu district & Dariba in Alwar district. Deposits of copper are also reported at Ajmer, Bharatpur, Bhilwara, Bundi, Chittorgarh, Dausa, Dungarpur, Jaipur, Jhunjhunu, Pali, Rajsamand, Sikar, Sirohi and Udaipur districts. Occurrence of other minerals, namely, **Dolomite** in Ajmer, Alwar, Bhilwara, Chittorgarh, Dausa, Jaipur, Jaisalmer, Jhunjhunu, Jodhpur, Sikar & Udaipur districts; **felspar** in Ajmer, Alwar, Bhilwara, Jaipur, Pali, Rajsamand, Sikar, Tonk & Udaipur districts; **fireclay** in Alwar, Barmer, Bharatpur, Bhilwara, Bikaner, Dausa, Jaisalmer, Jhunjhunu & Sawai Madhopur districts; **fluorspar** in Ajmer, Dungarpur, Jalore, Jhunjhunu, Sikar, Sirohi & Udaipur districts; **garnet** in Ajmer, Bhilwara, Jhunjhunu, Sikar & Tonk districts; **gypsum** in Barmer, Bikaner, Churu, Sri Ganganagar, Hanumangarh, Jaisalmer, Jalore, Nagaur & Pali districts; **iron ore (haematite)** in Alwar, Dausa, Jaipur, Jhunjhunu, Sikar & Udaipur districts; **iron ore (magnetite)** in Bhilwara, Jhunjhunu & Sikar districts; and **lead-zinc** in Zawar in Udaipur district, Bamnia Kalan, Rajpura-Dariba in Rajsamand & Rampura/Agucha in Bhilwara district. Lead-zinc occurrences have also been reported from Ajmer, Chittorgarh, Pali and Sirohi districts. **Lignite** deposits are found to occur in Barmer, Bikaner, Jaisalmer, Jalore, Nagaur and Pali districts. Flux grade **limestone** occurs in Jodhpur and Nagaur districts and Chemical-grade limestone in Jodhpur, Nagaur and Alwar districts. Cement grade deposits of limestone are widespread in Ajmer, Alwar, Banswara, Bhilwara, Bikaner, Bundi, Chittorgarh, Churu, Dungarpur, Jaipur, Jaisalmer, Jodhpur, Jhunjhunu, Kota, Nagaur, Pali, Sawai Madhopur, Sikar, Sirohi and Udaipur districts. **Magnesite** in Ajmer, Dungarpur, Pali & Udaipur districts; **marble** in Ajmer, Alwar, Banswara, Bhilwara, Bundi, Chittorgarh, Dungarpur, Jaipur, Nagaur, Sikar, Sirohi & Udaipur districts; **mica** in Ajmer & Bhilwara districts; **ochre** in Baran, Bharatpur, Bhilwara, Bikaner, Chittorgarh, Jaipur, Sawai Madhopur & Udaipur districts; **pyrite** in Sikar district; **pyrophyllite** in Alwar, Bhilwara, Jhunjhunu, Rajsamand & Udaipur districts; **quartz/silica sand** in Ajmer, Alwar, Bharatpur, Bhilwara, Bikaner, Bundi, Chittorgarh, Dausa, Jaipur, Jaisalmer, Jhunjhunu, Jodhpur, Kota, Pali, Rajsamand, Sawai Madhopur, Sikar, Sirohi, Tonk & Udaipur districts; **quartzite** in Ajmer, Alwar, Jhunjhunu & Sawai Madhopur districts; **rock phosphate** in Alwar, Banswara, Jaipur, Jaisalmer & Udaipur districts; **talc/steatite/soapstone** in Ajmer, Alwar, Banswara, Bharatpur, Bhilwara, Chittorgarh, Dausa, Dungarpur, Jaipur, Jhunjhunu, Karauli, Pali, Rajsamand, Sawai Madhopur, Sirohi, Tonk & Udaipur districts; **vermiculite** in Ajmer & Barmer districts; and **wollastonite** in Ajmer, Dungarpur, Pali, Sirohi & Udaipur districts.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2015: Rajasthan

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	-	-	-	-	-	-	-	51521	1016000	-	-	1067521	1067521
Asbestos	tonne	-	-	-	-	1803183	3070449	4027514	87802	42101	4526861	57800	13615710	13615710
Ballclay#	tonne	26804980	10979851	3735497	41520329	5080531	1443858	3162346	221176	218550	25262892	-	35389353	76909682
Barytes#	tonne	134416	-	72751	207167	6018	15890	108577	37808	311500	2304688	-	2784481	2991648
Bauxite	'000 tonnes	-	-	-	-	-	-	-	-	-	528	-	528	528
Bentonite# #	tonne	4705000	50000	-	4755000	-	2718630	56172302	24356005	222017000	92523096	25730000	423517033	428272033
Calcite#	tonne	911597	790072	1597877	3299546	909511	182713	2873548	539746	1041668	3371912	-	8919099	12218645
China clay#	'000 tonnes	73434	29510	22493	125437	47554	26157	40542	1584	3221	294386	11428	424874	550311
Copper														
Ore	'000 tonnes	15333	-	29718	45051	11110	228	51226	18603	102088	580541	4480	768276	813327
Metal	'000 tonnes	175.12	-	433.55	608.67	12.94	3.29	492.46	338.66	699.24	2291.94	28.61	3867.14	4475.81
Corundum	tonne	-	-	-	-	-	-	-	-	-	11925	-	11925	11925
Diatomite#	'000 tonnes	-	-	-	-	634	-	-	-	-	1440	-	2074	2074
Dolomite#	'000 tonnes	57910	4579	13994	76483	20483	10807	121082	16132	25480	327838	784	522607	599089
Felspar#	tonne	161965311	102283772	41417085	305666168	35514780	40938272	33919764	12410200	8488066	132329070	2866777	266466928	572133096
Fire clay#	'000 tonnes	6561	-	3932	10493	1548	1718	697	2256	2580	35363	-	44163	54656
Fluorite	tonne	-	-	-	-	631630	592258	562023	1528348	489488	1294529	145183	5243458	5243458
Fullers Earth##	tonne	3941000	-	-	3941000	-	-	-	-	350000	190409080	-	190759080	194700080
Garnet	tonne	33566	35926	5556	75048	3100	26663	29629	5207	21432	123587	333	209952	285000
Gold														
Ore (Primary)	tonne	-	-	-	-	-	-	-	4600000	50193000	69747720	63000	124603720	124603720
Metal (Primary)	tonne	-	-	-	-	-	-	-	6.67	103.34	123.03	0.07	233.11	233.11
Granite# # (Dimension Stone)	'000 cum	5581	100380	4500	110461	38462	-	-	-	-	9021742	20000	9080204	9190665
Graphite	tonne	-	-	-	-	47600	-	165920	-	250000	1450034	-	1913554	1913554
Gypsum#	'000 tonnes	23617	153	658	24428	6201	82814	18663	750	710604	236847	-	1055878	1080306
Iron ore (Haematite)	'000 tonnes	2103	2175	380	4658	8764	6105	471	-	11510	6897	-	33745	38404
Iron ore (Magnetite)	'000 tonnes	17148	2185	16090	35423	595	460	10113	-	-	554904	15422	581493	616916
Kyanite	tonne	-	-	-	-	13097	-	10606	-	-	-	-	23703	23703
Laterite#	'000 tonnes	-	-	-	-	-	-	-	-	-	60490	62860	123350	123350

(Contd.)

Table - 1 (Concld.)

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						
Lead-Zinc														
Ore	'000 tonnes	31662	68687	5767	106116	2965	12888	29734	28779	170547	317929	1380	564222	670338
Lead metal	'000 tonnes	624.56	1666.02	191.76	2482.34	45.21	390.22	733.23	490.82	1860.47	5462.09	-	8982.04	11464.38
Zinc metal	'000 tonnes	2871.75	6728.14	399.63	9999.52	235.38	772.17	1289.91	1514.15	7145.53	13435.31	0.53	24392.98	34392.5
Lead-Zinc metal	'000 tonnes	-	-	-	-	-	-	-	-	-	119.86	22.37	142.23	142.23
Limestone	'000 tonnes	2471143	933889	863351	4268382	367799	1538090	4529048	596071	761855	11365794	939808	20098465	24366847
Magnesite	'000 tonnes	-	-	-	-	912	1589	2121	-	149	49033	-	53804	53804
Manganese ore	'000 tonnes	1051	-	647	1697	-	-0	-	-	-	4030	-	4030	5727
Marble##	'000 tonnes	-	-	-	-	104236	173875	25703	-	90000	837615	-	1231429	1231429
Mica#	kg	20245098	1742047	12209547	34196692	19292500	10605400	5732418	49522483	16922016	36385724	3415315	141875856	176072548
Ochre#	tonne	15009099	4253584	8474360	27737043	42838694	11819905	23478699	1824210	942087	21728459	841236	103473290	131210333
Potash	million tonnes	-	-	-	-	-	-	-	-	16936	3462	22	20419	20419
Pyrite	'000 tonnes	-	-	-	-	13667	-	22917	9590	26310	18392	-	90876	90876
Pyrophyllite#	tonne	368774	214870	179514	763158	156136	38989	210982	219612	119469	551225	-	1296413	2059571
Quartzite#	'000 tonnes	140	-	86	226	-	18	18	-	-	706	-	742	968
Quartz-Silica sand#	'000 tonnes	239131	58049	51719	348900	160380	34587	50216	5464	8001	131816	1098	391561	740462
Rock Phosphate	tonne	37833537	-	477000	38310537	1154961	20857437	4453355	152633	79750	28043783	2627650	57369569	95680106
Sillimanite	tonne	-	-	-	-	300	-	519	-	-	-	-	819	819
Silver														
Ore	onne	58657075	6683000	72753828	138093903	-	8820	029524218	27732000	60240000	191542579	-	309126997	447220900
Metal	tonne	4307.07	220.53	2641.39	7168.99	-	0.26	127.57	1876.39	3045.91	17140.37	-	22190.5	29359.49
Talc-Steatite-Soapstone#	'000 tonnes	52812	2989	22189	77990	11249	6167	17498	1640	858	63411	151	100975	178965
Tungsten														
Ore	tonne	-	-	-	-	-	-	-	-	963666	17000628	5964000	23928294	23928294
Contained WO_3	tonne	-	-	-	-	-	-	-	-	1421.44	90171.5	2115	93707.94	93707.94
Vermiculite	tonne	-	-	-	-	20623	2759	4428	-	13000	2883	-	43693	43693
Wollastonite	tonne	1953384	48075	240003	2241462	3750118	12000	3748191	76088	3325042	1322852	-	12234291	14475753

Figures rounded off

Note: *The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2016 are 31.72 million tonnes and 35.66 billion cu. m, respectively*

 # Declared as Minor Mineral vide Gazette Notification dated 10.02.2015

Minor Mineral before Gazette Notification dated 10.02.2015

Other important minerals that occur in the State are: **apatite** in Udaipur & Sikar districts; **bauxite** in Kota district; **bentonite** in Barmer, Jaisalmer & Jhalawar districts; **corundum** in Tonk district; **diatomite** in Barmer & Jaisalmer districts; **emerald** in Ajmer & Rajsamand districts; **fuller's earth** in Barmer, Bikaner & Jodhpur districts; **gold** in Banswara, Bhilwara, Dausa, Sirohi & Udaipur districts; **granite** in Ajmer, Alwar, Banswara, Barmer, Bhilwara, Chittorgarh, Jaipur, Jaisalmer, Jalore, Jhunjhunu, Jodhpur, Pali, Rajsamand, Sawai Madhopur, Sikar, Sirohi, Tonk & Udaipur districts; **graphite** in Ajmer, Alwar & Banswara districts; **kyanite** & **sillimanite** in Udaipur district; **manganese ore** in Banswara, Jaipur & Pali districts; **potash** in Jaisalmer & Nagaur districts; **silver** in Ajmer, Bhilwara, Jhunjhunu, Rajsamand, Sikar & Udaipur districts; and **tungsten** in Nagaur & Sirohi districts (Table - 1). District-wise reserves/resources of lignite in the State are provided in Table-2.

Deposits of **petroleum** are located in the Bikaner-Nagaur and Barmer-Sanchore basin and those of **natural gas** in Jodhpur and Jaisalmer basins in the State.

Exploration & Development

National Oil Companies (NOC) continued their seismic survey for petroleum and natural gas during 2019-20.

The details of exploration activities conducted by various agencies GSI, MECL, HZL, State DMG, RSMML etc. for limestone, gold, base metals (Cu,Pb & Zn), lignite and other minerals including minor minerals during the year 2019-20 are furnished in Table - 3.

Production

Production of different type of of minerals have been reported from the State of Rajasthan.

The value of minor minerals production was estimated at ₹ 12,203 crore for the year 2019-20.

The number of reporting mines in Rajasthan was 84 in the year 2019-20 in case of MCDR minerals (Table-4).

Table – 2 : Reserves/resources of Lignite as on 1.4.2020 : Rajasthan

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	**1168.53**	**3029.77**	**2150.77**	**6349.07**
Bikaner	560.30	230.33	309.19	1099.82
Barmer	495.23	2509.46	1496.77	4501.46
Jaisalmer & Bikaner	–	–	11.47	11.47
Jaisalmer	–	–	70.44	70.44
Jaisalmer & Barmer	–	–	13.80	13.80
Jalore	–	–	76.08	76.08
Nagaur	113.00	289.49	154.33	556.82
Nagaur & Pali	–	0.50	18.69	19.19

Source: *Coal Directory of India, 2019-20*

Table –3 : Details of Exploration Activities in Rajasthan, 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							
Base Metal & associated precious metals							
Copper							
Alwar	Agar block, Thanagazi Tehsil	-	-	03	-	95	Preliminary exploration for copper and associated precious metals in this area was carried out. The litho-unit exposed in Agar area was found to be massive quartzite, cross-bedded quartzite, quartz mica schist and metabasalt of Tehla Formation. Surface manifestations of copper mineralisation were observed in the form of fresh sulphides and native Cu in the protore material, and ferruginisation and brecciatation were also observed in quartzite and malachite stains in mining dump. The analytical result of 95 core samples of all three boreholes showed maximum 210 ppm Cu. The analytical results of core samples showed very insignificant value of base metals and precious metals in Agar block. The analytical result indicated that the metabasalt rock was devoid of copper, associated base metal and precious metal mineralisation in Agar area.
	Bhigota block, Rajgarh tahsil	-	-	-	-	-	Preliminary exploration for copper and associated precious metals in this area was carried out. The Bhigota area is characterized by rocks of the Kushalgarh, Sariska and Thanagazi formations of the Ajabgarh Group of the Delhi Supergroup. Surface indications of mineralisation were seen manifested in the form of malachite staining and presence of fresh sulphides like pyrite, chalcopyrite and chalcocite mainly in white siliceous dolomitic marble of the Kushalgarh Formation was observed. One mineralised zone (MZ-1) was delineated within white siliceous dolomitic marble of the Kushlagarh Formation, with 800 m strike length and width varying from 10 to 85 m. The analytical result of the bedrock samples indicated occurrence of different minerals are in the range as below: Cu (<10 to 9,800 ppm), Co (<15 to 302 ppm), Ni (<15 to 507 ppm), (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		
							Pb (<25 to 110 ppm), Zn (<15 to 630 ppm), Ag (<5 ppm) Cd (<5 ppm) and Au (<0.05 to 0.14 ppm). In the 04 channels in MZ-I, in BHG/ CH-1, only 3 samples showed 0.15 % Cu while the remaining samples showed less than 0.10 % Cu. The channel BHG/CH-2 analysed a maximum of 0.26% Cu, with 5 m x 0.19 % Cu. The channel samples (BHG/CH-3) analysed a maximum of 0.3 % Cu, with 4 m x 0.15% Cu.
	Tatarpur block	-	-	04	529.10	71	Preliminary investigation for basemetal and associated precious metals in this area was carried out. The area exposes meta-sedimentary rocks of Delhi Supergroup of rocks comprising of Alwar and Ajabgarh Groups. Copper mineralisation was mainly associated with hornblende-epidote gneiss, amphibolite belonging to the Kankwarhi Formation of Alwar Group and post-Delhi intrusive (quartz veins). A total of 529.1 m was drilled in 04 first level boreholes. The boreholes were planned at 200 m spacing along the strike for 60 m vertical intersection of ore zones. Out of 71 submitted core samples one sample showed 0.13% Cu as the maximum value. The analytical results of core samples received so far were not encouraging.
Sikar	Toda-Ramliyas block	-	-	09	-	-	Preliminary exploration (G3) for basemetal mineralisation in this area was carried out. The study area forms a part of Neem ka Thana Copper Belt which extends from Toda-Ramliyas in the south to Golwa- Gangutana (Haryana) in the north. A total of 07 first level boreholes (BH-01 to 07) and 02 second level boreholes (BH-08 to 09) were drilled in the block to test the strike and depth continuity of surface mineralised zone (MZ-I). The petrographic studies revealed that the main copper ore minerals were bornite, chalcocite, chalcopyrite and

(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		
							occasional covellite which were seen associated with specularite and pyrite, besides they also occurred along calcite and quartz veins. The host rock for mineralisation in the area was banded impure marble, amphibole bearing marble with occasional scapolite. The analytical results from the boreholes BH-01, 03 and 04 indicated copper lodes with grade varying from 0.24% to 0.42%. The analytical results of boreholes BH- 02, 05 and 06 did not indicated any significant sulphide zones.
	Adharshila-Dariba, Neem ka Thana	1:12000	-	-	-	-	Preliminary exploration (G3) for base metal in this area was carried out by detailed mapping which involved (1:2000 scale), surface sampling and ground geophysical survey. The surface indications of mineralisation in the block were in the form of malachite stains and fresh sulphides, i.e., chalcocite, bornite, chalcopyrite and pyrite in impure banded dolomitic marble as well as in quartz veins. Two mineralisation zones I and II were delineated on the basis of surface indications of mineralisation within impure banded dolomitic marble. The strike length of Zone-I was about 1,500 m with width varying from 5 to 21 m. The strike length of Zone-II was about 600 m with width varying from 11 to 66 m. The ground Geophysical Survey (SP, IP, Resistivity etc.) of 20 L. km was carried out in the block. The analytical results of channel samples indicated average copper values varying from 0.13% to 0.56%.
	Daudham-Kalakota block Nim Ka Thana	1:2000	-	-	-	-	Preliminary exploration (G3) for copper and associated precious metals in this area was carried out by detailed mapping on scale 1:2000. The surface indications showed mineralisation present in the form of malachite stains and fresh sulphides, i.e., chalcopyrite, covellite, bornite, pyrrhotite and pyrite in tremolite-bearing dolomitic marble, siliceous marble, (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		
							amphibole-bearing dolomitic marble, amphibole quartz biotite schist dolomitic marbles as well as in quartz veins. Three mineralisation Zones I, II and III were delineated on the basis of surface indications of mineralisation within tremolite bearing dolomitic marble, siliceous dolomitic marble and amphibole bearing dolomitic marble respectively. The ground geophysical survey of 20 L km was also carried out in the block, involving SP, IP, magnetic and Resistivity. The geophysical anomaly axes of magnetic, SP, IP and apparent resistivity also inferred presence of sulphide mineralisation in the western part of the mapped area. The geophysical axes almost did corroborate with the identified mineralised Zones I, II and III. The I zone was 500 m in strike length and 2 m wide with average grade varying from 0.10% to 0.24% Cu. The Zone II was 600 m in strike length and 2-5m wide with grade varying from 0.10% to 0.15% Cu. zone III was 300 m in strike length and 2-5m wide with average grade varying from 0.10% to 0.16% Cu. Two grab bed rock samples of collected from an old mine dump, indicated 0.12 ppm and 0.09 ppm of Au values in the block.
	Nathuwala block,	-	-	-	04	860	Preliminary exploration (G3) for Base metal and associated precious metals in this area was carried out. The Nathuwala block forms a part of Neem ka Thana copper Belt. Sub-surface exploration by 04 second level boreholes involved drilling of 860 m with 200 m spacing These second-level boreholes were planned to test the depth continuity of the Cu zone intersected in the boreholes BH-06, BH-07,BH-08 and BH-09, drilled in F.S. 2018-19. Of Total 2,065 m drilling were carried out in nine first level (FS-2018-19) and four second level boreholes (FS- 2019-20). All second level boreholes have (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		
							intersected sulphide mineralisation. The cumulative strike length of the mineralisation is 800 m. The thickness of the mineralisation zone varied from 2.0 to 21.0 m along the borehole. The petrographic studies of revealed that Cu mineralisation was hosted within the dolomitic marble in the form of fine dusty dissemination, specks and stringers. The mineralisation was also seen associated with the quartz and calcite veins. The analytical results of samples from the borehole BH-10 have indicated three copper lodes of 2 m to 3 m with grade varying from 0.27% to 0.40 % Cu at 0.2% cut off. The analytical results of samples from the borehole BH-11 have indicated one copper lode of 2 m width with 0.21% Cu at 0.2% cut off.
Alwar and Dausa	Kaled area	1:12000	1.5	-	-	-	Preliminary exploration (G3) for Base metal and associated precious metal mineralisation in this area was carried out by detailed mapping which involved 1.5 sq km on 1:2000 scale along with systematic grid sampling. The exposed rocks in the area belonged to Dogeta Formation of Railo Group of Delhi Super Group. The area of investigation was observed to be characterised by quartzite, impure dolomite, white quartzite, intercalated sequence of thin bends of dolomite and quartzite. Analytical chemical result showed Cu value from 0.09% to 3.50% and 08 samples showed Au value from 0.06 to 0.25 ppm. Mineralised zone of the block will be demarcated after receipt of complete analytical result.
Nagaur	Doiyana area	1:12500	100	-	-	172	Reconnaissance survey (G4) for Base metal and REE mineralisation in this area, was carried out. LSM which involved 100 sq km on 1:12,500 along with 50 cu. m of pitting/trenching was carried out. 112 BRS (both random and grid

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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		
							pattern), 50 PTS, 10 PCS were collected for chemical analysis to trace the base metal potential of the area and to delineate the extant of ore body, if any. In addition to this, 105 ground water samples were also collected from closed ground water system to trace the presence of sub surface mineralisation in the soil/alluvium covered area in 1 km X 1 km grid. Apart from the samples for chemical analysis, 10 ore microscopic samples, 5 XRD samples and 10 Petrographic samples were also collected to determine the nature and distribution pattern of the mineralisation. In the present area, mineralisation was observed in the form of chalcopyrite and bornite specks.
Alwar	Gor Pahari area block	1:12500	50	-	-	-	Reconnaissance survey (G4) for Base metal in this area was carried out by LSM. The lithounits exposed in the area form a part of highly folded metamorphics of Delhi Super Group which include quartzite, impure siliceous marble, carbonaceous phyllite and inter-bedded sequence of phyllite and quartzite. A total area of 50 sq km were covered by LSM on 1:12,500 scale along with systematic sampling. The study area is bounded by latitude N 27° 21'22.60" to N 27°29'5.86" and longitude E 76°45'1. 06" to E 76°51'25.20", and falls under the part of toposheet no. 54A/15. 200 BRS, 10 PS, 10 ORM, 10 PCS, 4 PTS, 5 XRD, 5 EPMA samples were collected for assessment of base metal mineralisation and associated precious metals in the area. Encouraging base metal values were not reported in the result received for the first two lots of samples.
Jhunjhunu	Goriyan block	1:12000	1.0	-	-	-	Preliminary exploration (G3) for copper, gold and associated mineralisation in this area was carried out by detailed geological

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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		
							mapping on 1:2000 scale of 1.0 sq km area, to understand the lithology, structures and control of mineralisation. Geophysical survey with 20 L km area was carried out to understand the physical behavior of lithology and control of mineralisation. The manifestations of copper mineralisation were observed mainly in brecciated ferruginised/gossanised quartzite of the Bharkol Formation. Occurrences of iron, zinc and gold were also reported in this unit. Effect of alteration was observed in the form of silicification and ferruginisation in the mapped area. The mineralisation was observed in the form of malachite stains only. On the basis of field observations and integration of geological, geochemical and geophysical data, Only one mineralised zone (MZ), i.e., MZ-1 was delineated. The MZ-I,was observed lying within ferruginised/gossanised brecciated quartzite of the Bharkol Formation. The mineralised zone (MZ-1) was seen extending up to 50 m in the eastern direction, in the study area. On the contrary, the western and northern part was found to be covered with sand dunes. The channel samples (GCH-1) analysed a maximum of 0.68 % Cu with 23 m × 0.27 % Cu and the mineralised zone was seen extending to a strike length of about 50 m on the eastern side, whereas on the western side, this extension of mineralised zone was not visible and the exposures faded under the sand dune cover (70 to 80 m thick).
Karmari block,	1:12500	50	-	-	-	-	Reconnaissance survey (G4) for copper and associated mineralisation in this area was carried out by large scale mapping in an area of 50 sq km on (1:12500), 19.4 L km ground geophysical survey (SP, IP & Magnetic) and 440.55 m of borehole geophysical logging.The study area comprised meta-sedimentary rocks of Alwar

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							and Ajabgarh Group of the Meso-proterozoic Delhi Supergroup. Potential for base metal mineralisation was seen manifested by surficial malachite staining's and old workings along the NE-SW trending Babai-Tonda lineament. A well-defined skarn zone was observed to be present in the eastern contact of the granite with calc-silicate rocks which is a favourable locale for base metal mineralisation. The existence of sulphide mineralisation in the area is evidenced by the presence of old workings, slag dumps, limonitic gossans, malachite and azurite encrustations and the presence of specks of primary sulphides. The important zones of mineralisation were confined to quartzite, garnetbiotite-schist, calc-silicate and Babai granite.
	Manaksas-Norangpura area	1:12500	100	-	-	70	Reconnaissance Survey (G4) for basemetal and gold mineralisation in this area was carried out by mapping. An area of about 100 sq km on 1:12500 scale was mapped. The area forms a part of southern Khetri Belt. The Delhi Supergroup rocks exposed in the area was seen divided into Alwar and Ajabgarh Groups and having gradational contact between the both. Gossans were developed on the hill tops of Ajabgarh sedimentaries. The analytical results of 70. samples of the mapped area indicated Cu value ranging from 6 ppm to 0.1%, Co value from <15 ppm to 171 ppm, Ni value from <15 ppm to 152 ppm, Zn value from 9 ppm to 222 ppm and Pb value as <25 ppm. The analytical result of the study area showed much variation in total copper values which varied in different rock types.
Sikar	Chaukri Bamarana area	1:2000	1.5	-	-	-	Preliminary exploration (G3) for base metal mineralisation and associated precious metals in this area was carried out. An area of 1.50 sq km was mapped on 1:2000 scale.

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							Surface indications of copper mineralisation were observed in the form of malachite stains at only few random places and within scree and dump material. The analytical results of channel samples showed copper values ranging from 50 ppm to 0.36%. Part of the analytical results of bed rock samples were received in which only one bed rock sample showed 0.3% Cu value while the Cu value of in other bed rock samples varying from <10 ppm to 988 ppm. The received analytical results of channel samples and bed rock samples did not show encouraging copper values except in a few samples. no definite copper mineralised zone.
Ajmer & Pali	Asan-Gafa block	1:12500	100	-	-	-	Reconnaissance survey (G4) for basemetal and associated mineralisation in this area carried out. Major part of the study area was seen occupied by the rocks of Delhi Super Group, Phulad Ophiolite suite and Gayngarh-Asind acidic rocks. Rocks of Phulad ophilite is the most important tectono-stratigraphic units in terms of base metal mineralisation. A total area of 100 sq km were covered by LSM on 1:12,500 scale, giving special emphasis on delineating the different units of Phulad ophiolite rocks and asserting their potential for hosting base metal mineralisation. Surface evidence of base metal mineralisation, such as, gossan, old workings, slag heaps, malachite and azurite staining were noticed in the areas of Gafa, Charpalan, Dhikan north and Asan village. Primary sulphides, such as, pyrite, chalcopyrite, bornite and sphalerite ore minerals were observed in the bed rocks of these areas. In Gafa area, two gossan zones trending NE-SW, each around 700 metre in length were observed. In Dhikan-Asan area a discontinuous gossan zone altogether around

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							1,200 metre in length was observed. The bed rock adjacent to the gossan zones contained specs of chalcopyrite and bornite. The analytical results received showed spot value of copper as high as 2.31% and that of Zn 720 ppm. These values were highly sporadic in nature and do not form any zone. The analytical results of 26 channel samples showed values of copper ranging from 0.10%to 1.10% in 10 m.
	Barakhan Sarupa area	1:12500	100.0	-	-	116	Reconnaissance survey (G4) for copper and associated mineralisation in this area was carried out by an area of 100 sq km by LSM on 1:12,500 scale. The area. forms part of SDFB and comprised rocks of Delhi Supergroup with basic intrusive/ extrusive (Phulad Ophiolite Suite), Erinpura Granite and its equivalents, and pegmatite. Sporadic occurrence of malachite staining was recorded at four locations in the calc silicates of Ajmer Formation, biotite gneiss of Kotra Formation and meta-intrusive amphibolites within Kotra Formation. Analytical results of 96 bed rock and 20 pitting and trenching samples indicated that value of copper and other associated minerals varied from less than 10 ppm to 3,700 ppm. However, the samples that showed higher values of Cu were collected from isolated malachite-stained horizons and no lateral continuity of mineralised zone could be demarcated. Based on the large-scale mapping and analytical results received so far, the Barakhan Sarupa block showed indications of low potential base metal mineralisation.
Bhilwara	Suwana block	1:12500	100.0	-	-	-	Reconnaissance survey for base metal and associated mineralisation was carried out in this area by large scale mapping for an area of 100 sq

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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		
							km on 1:12,500 scale. The lithounits encountered during the were are namely granite gneiss, garnetiferous mica schist and amphibolite of Potla Formation of Mangalwar Complex, quartzite of Pur, calc gneiss/calc silicate and mica schist Rewara, banded magnetite quartzite of Tiranga and quartzite of Samodi Formations of Pur-Banera Group of Bhilwara Supergroup. few occurrences of pegmatites and quartz veins of later generation were also recorded. The area was observed to have undergone polyphase deformation with metamorphism up to amphibolite facies. The surface indication of base metal mineralisation was seen manifested as malachite stains recorded from amphibolite. However, subsurface mineralisation is evidenced as specks of pyrite and chalcopyrite recorded from dug well samples of amphibolite.
Bhilwara and Ajmer	Kanei kalan-	1:12500	100	-	-	10	Reconnaissance survey (G4) for base metal and associated mineralisation in this area was carried out by large Scale Geological Mapping of in 100 sq km area on a scale of 1:12500 in the study area. Lithologically, the area was found mostly occupied by medium to high-grade metamorphic rocks, such as, schists and gneisses of Potla Formation of Mangalwar Group. Enclaves of high-grade rocks, such as, migmatites and composite gneisses belonging to Kekri Formation were observed to lie within these rocks. Signatures of mineralisation were observed within quartz veins found in the northeast of Village Kachariya and within hornblende gneisses to the east and northeast of Village Kheri. However, the mineralisation was observed as disseminated in nature and sporadi in occurrence about 10 BRS samples from these areas were submitted for chemical analysis in respect of base metals on priority basis out of which 02 samples of

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							recorded significant Cu values (0.19% Cu & 0.16% Cu respectively).
	Deolia block-	1:12500	100	-	-	-	Reconnaissance survey (G4) for base metal and associated mineralisation in this area was carried out by mapping an area of 100 sq km on 1:12,500 scale. The study area forms a part of Sandmata Complex of Bhilwara Supergroup. Rock types exposed in the study area were hornblende-feldspar gneiss, garnet-biotite schist/gneiss±sillimanite, migmatite gneiss, quartzite of Sandmata Complex. Porphyritic gneissic granite, charnockite, amphibolite, granite, pegmatite and quartz vein were present as intrusive in the study area. The mineralisation was seen manifested by the presence of fresh sulphide in the form of pyrite, chalcopyrite pyrrhotite, bornite, arsenopyrite and covellite. Specks of mineralisation were also observed in dug well samples from Bagrai, Devkhera, Ghanera, south of Mataji ka khera area. Sulphide mineralisation was found occurring as disseminated form and fracture filling.
	Champaneri block	1:12500	100	-	-	52	Reconnaissance survey (G4) for base metal and associated mineralisation in this area was carried out by large scale mapping (LSM) covering 100 sq km area on 1:12500 scale in the strudy area. A total of 52 cu. m of pitting was carried out to the south and southwest of Village Champaneri and about 52 samples were collected. The litho-units exposed in the study area belonged to Sandmata Complex and Mangalwar Group of Bhilwara Supergroup. The rocks exposed in the area were mostly migmatite and gneiss of Sandmata Group and garnetiferous mica schist belonging to Potla Formation of Mangalwar Group. Amphibolite, belonging to Raipur Jalayan Mafic Rocks was

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							found to occur as intrusive in migmatite/gneiss of Sambhugarh Formation and in garnetiferous mica schist belonging to Potla Formation of Mangalwar Group.
Bhilwara	Kesarpura block	1:2000	1.5	-	-	112	Preliminary exploration (G3) for base metal in this area was carried out by detailed geological mapping on 1:2000 scale covering an area of 1.5 sq km in the study area. Geologically, the study area was found to be a part of Mangalwar complex of BGC. Mineralisation was observed in the form of ferruginised quartz veins and profuse malachite stains in the quartzite. Fresh sulphides, such as, chalcopyrite, pyrite, pyrrhotite, bornite and covellite were observed in the study area. The analytical results of 53 of bedrock samples (BRS received so far revealed <25 ppm Pb, <5 ppm to 45 ppm Zn and <5 ppm to 0.2% Cu in the quartzitic rock. The analytical results of 59 channel samples were received. The channel samples showed <25 ppm Pb and <5 ppm to 62 ppm Zn.
Bhilwara	Urja ka Khera area,south of Agucha deposit	1:2000	2	04	593.25	115	Preliminary exploration (G3) for base metal mineralisation in this area was carried out by detailed geological mapping of area of 2 sq km on 1:2000 scale along with pitting/trenching of 50 cu m and 26 L km ground geophysical survey. A total of 50 pitting/trench samples and 50 bed rock samples were analysed to assess the potential of Pb, Zn and associated base metals. A total of 10 samples were collected for petrological studies, 05 samples for OM study, 05 for petrochemical studies and 05 samples were collected for XRD study. The program was initiated with 1,000 m drilling work and 1,000 m geophysical logging along with collection of 330 core samples. Cumulatively, 593.25 m drilling in four boreholes (RJUK-01 to RJUK-04) were completed.

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
	Rampura	1:12500	100	-	-	30	Reconnaissance survey (G4) for Cu, Pb and Zn mineralisation in this area was carried out by large scale geological mapping on 1:12500 scale covering an area of 100 sq km. Geologically, the study area is part of Mangalwar complex of BGC. The analytical results of 11 bed rock samples (BRS) received so far revealed 0.01 % to 0.36 % Pb, 0.002 % to 0.17 % Zn and 0.004 % to 0.087 % Cu within calc-amphibole-garnet-magnetitic rock. The analytical results of 30 channel samples were received. The channel no-1 in Khamor area indicated 0.11 % to 0.16% Pb, 310 ppm to 600 ppm Zn and 220 ppm to 310 ppm Cu only within calcamphibole-garnet-magnetitic rock within a 4-meter zone. Similarly, of channel no. 2 indicated 0.14 % to 0.62% Pb, 0.11 % to 0.14% Zn and 210 ppm to 590 ppm Cu only in kalyanpura area. The integrated geophysical surveys using SP, Magnetic (VF) and IP chargeability methods were completed covering an area of 2 sq km within the desired block which delineated a conductive causative body in western part of the area which is under soil cover and has no surface indications in terms of geology on superimposition over geology.
	shivpura and Madera area South west of Agucha	1:12500	100	-	-	-	Reconnaisance survey (G4) for base metal mineralisation in this area was carried out by large scale mapping on 1:12500 scale covering an area of 100 sq km. The main litho unit observed in the study area comprised biotite schist/gneiss belonging to Badnor Formation of Sandmata Group and garnetiferous mica schsit which belonged to Potla Formation of Mangalwar Complex. Surface mineralisation in the form of sporadic malachite staining, and pyrite & chalcopyrite were found to occur as fresh sulphides. An 100 m strike length oxidised zone with 4-5 m thickness (width) was observed near Madera temple showing Cr concentration up to

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							1,165 ppm. Another mineralised zone having 6-7 m thickness (width) with 500-700 m strike length was observed near Madera hill showing good concentration of Cr values ranging from 600 to 1,200 ppm in association with Cu ranging from 500 to 600 ppm respectively. Chemical analytical results of bed rock samples received so far has revealed Cr value in the range of 600 to 1,200 ppm, Cu value of from 10 to 599 ppm, Zn value of from 10 to 362 ppm and Pb value in the range from > 2 to 25 ppm respectively. Also in soil samples, Cu value in the range of from 20 to 50 ppm, Pb value of from < 25 ppm and Zn value ranging from 25 to 55 ppm respectively were established.
	Raipur and Mokhampura area	1:12500	50	-	-	42	Reconnaissance survey (G4) for copper and associated mineralisation in this area was carried out for an area of 50 sq km by large-scale mapping on 1:12500 scale. In central part of the study area, surface manifestations of copper was observed within the amphibolites in the form of malachite staining and fresh specks of pyrite and chalcopyrite along the quartz veins (<12.5 m). Signatures of alteration were observed in contact between the amphibolite and migmatite gneiss. The chemical analytical data of 08 random bedrock samples out of 42 samples collected from the amphibolites showed anomalous Cu values ranging from 0.1% to 0.25%, however the Cu values of the 42 bed-rock samples varied from 105 ppm to 0.25% with an average of 632.85 ppm. Only one channel sample (CHS-1-8) out of 189 channel samples collected from amphibolites near north of Sagrev area showed 0.10% Cu value, however, the Cu values of the 189 channel samples showed Variations from 15 ppm to 0.1% with an average of 139.80 ppm. Statistical analysis of the bedrock and channel

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							samples was carried out which indicated a good positive correlation (0.7) between Ni and Co; however, the other elements did not show any good corelation.
	North of Malikhera, Pur-banera belt	1:12500	100	-	-	-	Reconnaissance survey (G4) for copper and associated mineralisation in this area was carried out which included large scale mapping of 100 sq km on 1:12500 scale. Lithounits exposed in the study area belonged to Pur-Banera group and Potla Formation of Mangalwar complex of Bhilwara Supergroup along with younger intrusive like pegmatite, and quartz veins. In the present study, the contacts of lithounits were updated according 1:12500 to scale. Mineralisation in the study area was mainly present in the form of BIF bands, malachite staining within the amphibole quartzite. Banded iron formation (BMQ) was found to be present as thin discontinuous bands at the peak of Kamalpura hills in south of Banera. Amphibole quartzite which showed extensive malachite staining and encouraging copper value near Village Manpura was most promising from mineralisation point of view.
Chittorgarh	Gangrar block	1:12500	100.0	-	-	-	Reconnaissance survey (G4) for basemetal and associated mineralisation in this area was carried out by large scale geological mapping (1:12500 scale) in an area of 100 sq km. The area predominantly seen to expose basement rocks comprising gneisses and meta-sediments belonging to Mangalwar Complex and Hindoli Groups of Bhilwara Supergroup. Surface evidences of mineralisation in the form of malachite stains, limonitisation, ferruginous encrustation, old workings with specks of primary sulphides (chalcopyrite, pyrite and bornite) in the quartzite of the Lasaria Formation were observed about. 06 grab bedrock samples

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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		
							collected during the LSM were analysed where Cu values were found to be ranging from 0.11% to 0.70%.
Rajsamand	Kalinjar block	1:12500	100	-	-	-	Reconnaissance survey (G4) for base metal and associated mineralisation in this area was carried out by . large scale geological mapping of 100 sq km area on 1:12500 scale. The lithounits exposed in the mapped area belonged to the Mangalwar Complex of Bhilwara Supergroup and Gogunda Group of Delhi Supergroup. Surface indications of mineralisation, such as, malachite, azurite stains, limonitisation and ferruginisation/oxidation along with specks of chalcopyrite, pyrite, bornite and some silver colour were observed at several places. Bedrock samples collected from migmatite gneiss of Sawadri Group showed value of 0.55% Cu. Some of the samples collected from albitite vein in fuchsite quartzite of Tanwan Group (dimension 250 m X 25 m) have analysed Cu value of 0.34%. A grab bed rock sample collected from chlorite-schist near Chechion ki Bhagal have analysed anomalous values of 0.37% Cr and 0.11% Ni.
Chittorgarh	Khuntiya block	-	-	-	-	-	Reconnaissance survey for base metal and associated mineralisation in this area was carried out by LSM. The area was found mostly covered by Berach granite/gneiss. Numerous metabasic/metadolerite, dolerite bodies, carbonated volcanic tuff, quartzite bodies, quartz veins and hydrothermal breccia rock units were mapped. During the LSM, contact of Vindhyan Supergroup and Bhilwara Supergroup of rocks along the Great Boundary Fault (GBF) was mapped. In the south-eastern part of the study area, sedimentary rock unit of Semri group (sandstone-siltstone-shale-limestone intercalations) were seen truncated near the granite contact. Some of the bedrock samples collected during the course of mapping have analysed 340 ppm of Zn, 495 ppm

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							of Pb and 570 ppm of Cu values.
	Jashma block	-	-	04	1418	-	Preliminary exploration (G3) for base metal in this area was carried out. The present work comprised deeper drilling to explore the deep-seated base metal mineralisation as reported in the previously drilled boreholes by DMG, Rajasthan in Jashma block. A total drilling of 1,418 m was carried out comprising 04 boreholes of depth ranging from 275 to 400 m. As the area of investigation was devoid of any surface manifestation of mineralisation, borehole BH-1 was planned with a purpose to intersect the sulphide zones. Borehole BH-1 has intersected the carbonate unit (calc. silicate marble) at the depth of 243-247 m, one of the main host rock in adjacent Sindesar Ridge area for Pb-Zn-Ag mineralisation. The borehole BH-1 intersected sulphide mineralisation in the form of pyrite, pyrrhotite and chalcopyrite hosted in graphite mica schist at the depth of 111 m, 156 m and 219 m respectively. Dissemination, stringers of chalcopyrite, covellite with pyrite and pyrhotite was observed along with sphalerite hosted in graphite mica schist in borehole BH-3 at the depth of 203-205.50 m, 286-288.50 m, 328-331 m, and 367-371 m respectively. The borehole BH-4 intersected the intercalated graphite mica schist and calc. silicate marble unit at the depth of 207-210 m and 212-215 m with specks, stringers and disseminations of pyrite, chalcopyrite and pyrrhotite. to 120 m vertical depth was estimated.
Udaipur	Ladana Diggi Block,	-	-	-	08	1385.25	General exploration (G2) for base metal mineralisation in this area was carried out. A total of 1,385.75 m of drilling were carried out in 8 boreholes with an

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Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							approximate spacing of 200 m in Ladana block. A resource of 1.6 million tonnes with 0.68 % Cu at 0.2% cut-off up to 120 m vertical depth was estimated.The mineralisation was observed in a brittle shear zone within the Untala Granite. Various lithounits observed in this zone were silicified amphibolite, granite gneiss, biotite schist and chloritized granite.
Udaipur	Ladana Diggi Block,	-	-	-	-	-	General exploration for base metal mineralisation in Ladana Diggi Block, Udaipur district, Rajasthan (G2): A total of 1,385.75 m of drilling were carried out in 8 boreholes with an approximate spacing of 200 m in Ladana block. A resource of 1.6 million tonnes with 0.68 % Cu at 0.2% cut-off up to 120 m vertical depth was estimated. The mineralisation was observed in a brittle shear zone within the Untala Granite. Various lithounits observed in this zone were silicified amphibolite, granite gneiss, biotite schist and chloritised granite. Details of copper lodes intersected in boreholes are given below: RJLD-1: 5.05 m x 0.35% Cu and 10.85 m x 0.26% Cu, RJLD-3: 11.05 m x 0.97% Cu, RJLD-4: 2.00 m x 0.48% Cu, 2.10 m x 0.40% Cu and 2.20 m x 0.66% Cu, RJLD-5: 4.35 m x 0.38% Cu and 2.75 m x 0.26% Cu, RJLD-7: 14.00 m x 0.20% Cu, 37.95 m x 0.30 to 3.00% Cu, 5.50 m x 0.20% Cu, 10.50 m x 0.20% Cu, 10.00 m x 0.20% Cu (VE) Major copper ore mineral observed here was chalcopyrite and the associated sulphides which include pyrite and pyrrhotite. Chalcopyrite was found as fine dissemination and fracture filled stringers within silicified granite, granite gneiss, silicified amphibolite, pink granite, and chlorite-biotite schist. Pyrite was present all along the drill cores in the form of fine dissemination, vein filled stringers and as encrustations on fractured surfaces.

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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		
Udaipur	Ladana North Block,	1:2000	1.6	-	-	-	Preliminary exploration for copper and associated mineralisation in Ladana North Block, Udaipur district, Rajasthan (G3): A total of 1.6 sq km area was mapped on 1:2000 scale. Major lithounits observed in the study area belonged to the Mangalwar Group of the Bhilwara Supergroup and intrusive granite. The Untala Granite was the most dominant lithounit with numerous quartz veins. The mineralisation was mainly confined to amphibolite and ferruginised quartz veins and very feeble mineralisation was noticed in the brecciated chert. One zone of mineralisation was demarcated based upon visible specks of chalcopyrite and malachite stains in quartz veins adjacent to amphibolite dyke. Magnetic and SP anomaly axes extending over a strike length of 300 m was also noted in this zone. Channel LNCH-1 was laid across this zone. Cu values from LNCH-1 varied from 250 to 540 ppm. Two trenches LNT-3 and 4 were laid further north of this channel, but no encouraging values were obtained. One grid BRS sample reported a Cu value of 0.9% and this was in the expected mineralised zone. Another grid BRS analysed a Cu value of >0.5%. Apparent resistivity, IP and magnetic anomaly axes were found to fall along the locations of these values. Chalcopyrite was reported as the major Cu ore mineral in this block. The mineralisation was of disseminated nature and fracture fillings were also noted. Replacement textures between chalcopyrite and covellite, covellite and haematite, pyrite and haematite wereobserved.
Rajsamand	Shambupura block, Pur-banera belt	1:12500	100	-	-	-	Reconnaissance survey for base metal and associated mineralisation in Shambupura block, Rajsamand district, Rajasthan (G4): Large - scale mapping of an area of 100 sq km on 1:12500 was carried out.

(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		
							Geologically, the area mapped comprised a thick succession of metamorphosed, highly deformed metasedimentary units of the Mangalwar Complex along with granite and granodiorite gneiss of the Ran Igneous Complex. Surface indications of mineralisation in the form of sulphide stains and fresh sulphides were observed in amphibolites of both the Asan Group and the Tanwan Group. Chalcopyrite, bornite, pyrhotite and pyrite were the dominant ore minerals observed here. Based on the presence of sulphides four potential Cu mineraised zones were demarcated at (1) Kaunwariya - Khakliyakhera area, (2) NW of Pipli Ahiran, (3) West of Pipli Ahiran area and (4) NW of Pipli Acharyan.
Udaipur	Khori Mahuri area	1:2000	1.5	-	-	-	Preliminary exploration for copper and gold mineralisation in Khori Mahuri area, Udaipur district, Rajasthan (G3): Detailed mapping of an area of 1.5 sq km m was done on 1:2000 scale and 20 L km geophysical survey was also carried out in the study area. The study area exposed different litho - units of the Debari Group of the Aravalli Supergroup and the Bhilwara Supergroup. The Debari Group was seen to be represented by meta-volcano sedimentary rocks of the Basal and Natharia-kipal Formations. The basement rock was found exposed in the form of Chavand granite and garnetiferous quartz-mica schist rocks of the Mangalwar Complex. Encouraging geophysical anomalies in the form of high chargeability, low resistivity, low SP and high bipolar magnetic anomaly were recorded over dolomitic marble band and surface indications affirms promising Cu 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		
Udaipur	Jharol block ,	1:12500	105	-	-	-	Reconnaissance survey for base metal and associated Ni, Cr mineralisation in Jharol block, Udaipur District, Rajasthan (G4): The study involved mapping of 105 sq km area on 1:12500 scale. The area which falls in the domain of Aravalli Super group of Aravalli-Delhi Fold belt showed intense polyphase deformation. The major lithounits that were observed in the study area were garnetiferous mica schist and quartzite belonging to Jharol Group of Aravalli Super group and ultramafic intrusives of Rakhabdev Ultramafic Suite. Indications of Cu mineralisation in the form of malachite stains at the contact of ultramafics and mica-schist were observed both in ultramafics and quartzites in the central (near Sarana), southern (East of Gopir) and southeastern part of the study area (Sultanji-Ka-Kherwara). Around Kochala, extensive malachite stains were observed in the altered ultramafics that have talc development and are schistose in nature. In Magwas and Sarana as well, malachite specks were observed on surfaces of ultramafics. Thin bands of chromite were also observed within the ultramafics at the northern part of the study area (sporadic occurrence at two places: east of Sarana and north of Gairiyawas, A few soapstone quarries also were found to occur within talccarbonate and extensively altered serpentinites.
Pirojpura, Banaskantha	Kui- Chitrasani Fault, Southern Delhi Fold Belt	1:12500	100	-	-	-	Reconnaissance survey for basemetals and associated minerals along the Kui-Chitrasani Fault, Southern Delhi Fold Belt, in and around Pirojpura, Banaskantha district, Gujarat (G4): Large scale mapping of 100 sq km area on 1:12500 scale was carried out in the study area. Geologically, the area comprisedmainlyof metasediments of Delhi Supergroup of rocks, metavolcanics rock of Phulad Ophiloite Suite and

(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		
							Mesoproterozoic intrusives of Sendra-Ambaji granite and granite gneisses. Mineralisation was observed to be in the form of disseminated pyrite, chalcopyrite, galena with intense surface incrustation of sulphides. Analytical results of 44 BRS samples from mineralised area received. Out of these, 12 samples showed concentration of Cu from 0.1% to 0.92%, 13 samples showed concentration of Cu from 500 ppm to 1,000 ppm and 5 samples showed concentration of Pb from 1,000 to 4,150 ppm and Zn from 0.1% to 1.12%. Detailed geophysical survey was carried out along the suspected mineralised zone and 26.9 L km geophysical survey was carried out in the study area, near Zanzarva and Malana Villages which indicated moderately favourable in term of mineralisation while near Village Dungarpura the indications were favourable for base metal mineralisation.
Sikar	Khora Central block, Bhudoli-Basari area, Nim Ka Thana	-	-	-	-	-	Preliminary exploration for base metal mineralisation in Khora Central block, Bhudoli-Basari area, Nim Ka Thana, Sikar, Rajasthan (G3): The block area mainly exposed rocks of Alwar and Ajabgarh Groups of the Delhi Supergroup and few post-Delhi intrusives. The surface evidences of mineralisation were widespread, intense and pervasive in the form of malachite stains. Occurrences of chalcocite, bornite and azurite as dissemination and vein filling were also observed. During the first level exploratory drilling investigation in Khora Extension Block, six boreholes were drilled, withspacing of 200 m over 800 m strike length. The investigation established the occurrence of sub surface copper mineralisation. Copper mineralisation was seen hosted by banded impure marble of the Kushalgarh Formation of the Ajabgarh Group. All the boreholes

(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		
							drilled intersected copper and sulphide mineralisation. The dominant ore minerals intersected in the boreholes were chalcocite, chalcopyrite occasionally with bornite. Mineralisation observed mostly occurred in the form of disseminations, vein and fracture fillings.
Sikar	Kalamara block, Bhudoli- Basari area, Nim Ka Thana ,	-	-	-	-	-	Preliminary exploration for base metal mineralisation in Kalamara block, Bhudoli- Basari area, Nim Ka Thana, Sikar, Rajasthan (G3): The study was taken up to delineate the zones of base metal mineralisation. The Kalamara block is located about 04 km south of Nim Ka Thana, Sikar district, Rajasthan. Detailed geological mapping was carried out over an area of 1.27 sq km on 1:2000 scale along with types of sampling. Banded impure marble of the Kushalgarh Formation of the Ajabgarh Group of the Delhi Supergroup was the main rock type exposed that was observed to host copper mineralisation in the form of malachite, bornite and chalcocite. Two mineralised zones were identified and drilling would be taken up in subsequent year.
Sikar	Ravji Ki Dhani area, Nim Ka Thana,	-	-	-	-	-	Preliminary exploration for base metal in Ravji Ki Dhani area, Nim Ka Thana, Sikar district, Rajasthan (G3): Detailed geological mapping was carried out over an area of 1.8 sq km on 1: 2000 scale along with different types of sampling. The dominant lithologies observed were meta-sediments belonging to the Kushalgarh Formation of the Ajabgarh Group and the Pratapgarh Formation of the Alwar Group of the Delhi Supergroup.copper mineralisation was observed in the form of malachite stains and disseminations of pyrite, chalcopyrite, bornite and chalcocite. At some places quartz veins that intruded into amphibole marble along and across the strike also carried disseminated bornite and

(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		
							chalcocite. Three mineralised zones (MZ-I, MZ-II and MZ-III) were delineated in amphibole marble of the Kushalgarh Formation. The area will be taken up for drilling in subsequent year.
GSI							
Iron Ore							
Jaipur	Banol area,	1:2000	1.5	-	-	-	In Rajasthan, a preliminary exploration for appraisal of iron ore in Banol area, Jaipur district was carried out. An area of 1.5 sq km was mapped on 1:2000 scale during the study. Detailed mapping demarcated the presence of 2-3 discontinuous bands of iron ore. Some evidences of opencast/ underground mining activities were noticed in the form of small pits filled with mine dump. The total strike length of mineralised zone in Band I was about 750 m with a exposed thickness of about 5- 10 m in the western limb and 20 m in the eastern limb. The strike length of Band II extended to about 100 m with thickness of approx. 10 m in the western limb. The Fe content in Band I varied from 27.31% to 69.38% and in Band II it varied from 20.74% to 66.08%.
Jaipur	Morija area	-	-	-	-	-	A preliminary exploration for appraisal of iron ore was carried out in Morija area, Jaipur district. Three bands of haematite were demarcated. Band-1 extended for about 1.3 km strike length with thickness Varying from 7 to 30 m. Band-2 with strike length of 450 m showed thickness Varying from from 6 to 13 m. Kankeria area exposed the shortest band of haematite of 210 m strike length with 6-12 m thickness. Channel samples collected from hinge area showed 6 m wide zone with 66.08% Fe (weighted average) while adjacent channel exposed 6 m wide zone with 58.24% Fe value (weighted average). A 90 m long and ~8 m thick zone of albitite was reported for the first time in the area.

(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		
Manganese & Phosphorite							
Rajsamand	Rawarion Ki Dhani Block,	1:2000	2.00	-	-	-	Preliminary Exploration for Manganese, Phosphorite and Associated Mineralisation in Rawarion Ki Dhani Block, Rajsamand District, Rajasthan (G3): Detailed mapping of 2.00 sq km on 1:2000 scale was carried out. The mineralisation encountered was observed to be present mainly around Matkeshwar areas associated in chert/cherty quartzite of Debari Group. Manganese was found associated with brecciated chert bands. The depth continuity of manganiferous chert bands was checked by scout drilling in the block. Boreholes were planned targeting the manganiferous chert bands in the shallow level boreholes along the surface geochemical profiles. A total of 441 m of drilling were completed in the block with 4 boreholes (RJRD-01, RJRD-02, RJRD-03 and RJRD-04) targeting different manganiferous bands. The intersected mineralisation was proved to be very feeble.
Rajsamand	Karoli ki Dhani block,	1:2000	2.0	-	-	-	Preliminary exploration for manganese, phosphorite and associated mineralisation in Karoli ki Dhani block, Rajsamand District, Rajasthan (G3): Detailed mapping of 2.0 sq km area was carried out on 1:2000 scale. The litho units exposed were dolomite, mangniferous chert, cherty quartzite, brecciated chert and phyllite. The manganese mineralisation predominantly was associated with mangniferous chert which was validated through chemical analysis of a few channels. Three mineralised bands were demarcated in the area based on surface indications of mineralisation whereas fourth mineralised band was discontinuous body. Surface mineralisation of manganese in the form of nodular and vein forms were delineated in the study area. At places, manganiferous chert body occurred as highly brecciated in

(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		
							nature. The mineralisation was mainly localised in cherty quartzite/ quartzite and occurred as thin pockets and lenses. The brecciated and nodular forms of three manganese zones were delineated in the study area. The strike length varied from 50 m to 500 m while the width varied from 5 to 25 m. Results obtained from chemical analysis showed the value of MnO to be Varying from 0.01% to 25.32% in channels 1, 2 and 3.
Potash							
Rajasthan							
Bikaner	Lakhasar block	1:10000	13.107	7	4695.50	2995	-
Magnesite							
Rajasthan							
Udaipur & Rajsamand	Iswal-Selu-Tula area	1:12500	104.00	20	669.00	1044	-
Directorate of Mines & Geology, Rajasthan							
Limestone							
Kota	N/v Nimana-Dunia, Shohan Khera, Tehsil Ramganmandi.	1:10000	16.00	4	128.00	52	-
		1:4000	3.50	-	-	-	
Baran	N/v Aughar, Tanda,	1:10000	10.00	-	-	10	-
	Majhola Thana Kasba, Tehsil Shahabad.	1:4000	3.30	-	-	-	
Sandstone							
Baran	Aama and Khan ki Jhonpariya, Tehsil Anta.	1:4000	1.20	-	-	-	-
Limestone							
Karauli	N/v Hansapur, Gota, Chichiri, Tehsil Mandrayal	1:10000	30.00	-	-	-	-
		1:4000	5.00	-	-	-	

(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		
Naugar	N/v Deh Tehsil Jayal	1:10000	20.00	7	297	121	-
	N/v Awad & Khera Tehsil Jayal	1:10000	15.00	2	61.5	4	-
	N/v Tadas & Khorwa, Tehsil Khiswar	1:10000	5.00	-	-	3	-
Sandstone & Masonry Stone							
Karauli	Aama and	1:10000	10.00	-	-	-	-
	Khan ki	1:4000	2.70	-	-	-	-
	Jhonpariya, Tehsil Anta.						
Chittorgarh	Samariya Kalan,	1:10000	10.00	-	303.00	263	-
	Nalhuramji Ka	1:4000	3.00	-	-	-	
	Khera, Meghniwas and Mandna Begun-Taluka						
	Sidwari,	1:10000	10.00	-	107.00	34	-
	Ramakhera,	1:4000	3.00	-	-	-	
	Sathanda Tehsil Begun.						
Jaisalmer	N/v Sam Tehsil	1:4000	10.00	14	523.0	438	-
		1:4000	2.00	-	-	-	
Jodhpur	Borunda.	1:10000	20.00	-	-	20	-
	Haryadhana.	1:4000	5.00	-	-	-	
	Digarna, Sinla. Bitan, Kardaya, Bilara Tehsil						
Pali	Ramasnibala,	1:10000	20.00	-	-	20	-
	Mandla, Asan &	1:4000	5.00	-	-	-	
	Dhaneri, Sojat Tehsil						
Bhilwara	N/v Ladpura Thela, Chitauriya Dharkarkhedi,etc Mandalgarh Tehsil	1:2000	2.75	4	173.0	278	-

(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		
Kota	N/v Nimana-Dunia, etc, Ramganj Mand Tehsil	1:4000	3.00	11	362.0	104	-
Baran	N/v Augar, Tanda	1:10000	10.00	-	-	12	-
	Majola, etc Shahbad Tehsil	1:4000	3.00	-	-	-	
Chittorgarh	N/v Binota Tatarmala, Khorip, etc.	-	-	-	-	-	-
	N/v Samriya kalan, Nathuramji ka khera, etc	1:4000	3.00	-	-	-	-
	N/v Sindwari-Ramakhera-Satkhanda, etc	-	-	10	526.0	377	-
Sandstone							
Bharatpur & Dausa	N/v Kalwan, Sikri Tehsil N/v Dumariya, Roopwas Tehsil & N/v Nangal, Pahari Tehsil	1:4000	2.00	-	-	04	-
Bundi	N/v Dhaneshwar Tarela Tehsil	1:4000	1.20	-	-	-	-
Snadstone/ Siliceous Limestone							
Jaisalmer	N/v Rupsi	1:10000	10.00	-	-	-	-
Granite							
Jalore	N/v Kol-Kasta & Tavab, Bhinmal Tehsil.	1:10000	10.00	-	-	09	-
		1:4000	3.00	-	-	-	
Sirohi	N/v Veerwara.	1:10000	25.00	-	-	07	-
	Naya-Sanwara, Kukrikheda, etc in Pindwara & Sheoganj Tehsils	1:4000	2.30	-	-	-	
Masonry Stone							
Sirohi	N/v Pamera	1:10000	10.00	-	-	03	-
	Reodar Tehsil.	1:4000	1.00	-	-	-	

(contd)

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		
Blockable Pegmatite, Granite, Masonry Stone							
Rajsamand	N/v Gurha-Chhipala, Kawas ka Gurha, etc Bhim Tehsil	1:10000	3.25	-	-	06	-
		1:4000	3.25	-	-	-	
Sikar	Maonda, Tehsil Neem ka Thana.	1:10000	10.00	-	-	24	-
		1:4000	3.20	-	-	-	
Jodhpur	N/v Bhagasani & Rampurya Tehsil Bilara	1:10000	20.00	-	-	50	-
		1:4000	5.00	-	-	-	
Siliceous Earth							
Barmer	N/v Dharvi, Fatehpura &	1:4000	1.00	-	-	-	-
Utal	Tehsil Sheo	-	-	-	-	-	-
Jaisalmer	N/v Mandai Fatehgarh Tehsil	1:10000	3.00	-	-	-	-

Table – 4: Mineral Production in Rajasthan, 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		**84**		**191058893**	**84**		**229732298**	**84**		**247030882**
Lignite	'000t	-	9294	-	-	8676	-	-	8223	-
Natural Gas (ut.) m c u m		-	1442	-	-	1483	-	-	1883	-
Petroleum (crude)	'000t	-	7887	-	-	7667	-	-	6653	-
Copper Ore	t	-	1160267	-	-	1349566	-	-	1119523	-
Copper Conc.	t	2	61312	4047407	2	66075	4316241	2	51832	3094145
Iron Ore	'000t	11	1320	4066062	7	1108	3893253	9	1012	3627536
Lead & Zinc Ore	t	-	12613866	-	-	13752295	-	-	14479032	-
Lead Conc.	t	8	306398	11429413	10	358369	16316914	10	351271	18072776
Zinc Conc.	t	*	1539657	49799273	*	1456804	56083827	*	1446823	60231216
Manganese Ore	t	1	7502	22506	1	9410	28230	1	9937	29811
Silver **	kg	-	557518	21172433	-	679172	25816971	-	441631	18039041
Phosphorite	t	2	1401698	3559484	2	1322486	3795028	1	1300226	4224675
Garnet (abrasive)	t	2	5781	18717	4	5166	23662	3	552	4734
Limestone	'000t	35	74138	17482060	36	76567	19496173	38	72375	17547327
Selenite	t	4	469	939	3	2906	5812	2	1167	2353
Siliceous Earth	y	15	86662	53164	16	80237	50205	14	13900	10235
Wollastonite	t	4	153049	126025	3	184063	172013	4	124657	119054
Minor Minerals		-	-	79281410	-	-	99733969	-	-	122027979

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

$ Excludes the value of Fuel minerals.

** Number of mines covered under lead concentrates.*

*** Recovered at Chanderiya Lead-Zinc Smelter of HZL from lead concentrates produced in Rajasthan.*

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 provided in Table - 5.

Table – 5 : Principal Mineral-based Industries

Industry/plant	Capacity ('000 tpy)
Cement	
ACC Ltd, Lakheri, Distt Bundi	1500
Ambuja Cements Ltd, Rabriyawas, Distt Pali	3600
Binani Cement, Binanipuram, Distt Sirohi	4850
Binani Cement, Neem Ka Thana, Sikar (G)	1400
Birla Corporation Ltd, (Birla Cement Works & Chanderia Cement Works), Chittorgarh	4000
India Cements Ltd, Jhalo ka garha Garhi	1800
J.K. Cement, Nimbahera, Distt Chittorgarh	3250
J.K. Cement, Mangrol, Distt Chittorgarh	2500
J.K. Cement, Gotan, Distt Nagaur	500
J.K. White Cement Works, Gotan, Merta, Distt Nagaur	610 (white Cement) 500 (white Putty)
J.K. Laxmi Cement, Banas, Distt Sirohi	8700
NUVOCO Vistas (Lafarge) India Ltd, Nimbahera, Distt Chittorgarh	2600
Mangalam Cement (Mangalam Cement & Neer Shree Cement), Morak, Distt Kota	3250
Nirma Limited, Nimbol, Jaitaran	2280
Shree Cement Ltd, Beawar, Distt Ajmer	3000
Shree Cement Ltd, Andherideori, , Masuda, Ajmer	3600
Shree Cement Ltd, Ras, Distt Pali	3000
Shree Cement Ltd, Ras , Jaitaran, Distt Pali	4000
Shree Cement Ltd, Kushkhera, Distt Alwar (G)	3500
Shree Cement Ltd, Suratgarh, Distt Sri Ganganagar (G)	1800
Shree Cement Ltd, Suratgarh, Rohi, Udaipur-Udasar Distt Sri Ganganagar (G)	3600
Shree Cement Ltd, Jobner, Distt Jaipur (G)	1500
Shriram Cement Works, Kota	400
Trinetra Cement (Subsidiary of India Cement), Nokhala, Distt Banswara	1800
Udaipur Cement Works (Subsidiary of JKCL), Udyog Ltd,), Udaipur	1240
Ultra Tech Cement (Birla White Cement Division), Kharia Khangar, Bhopalgarh	680 (white cement) 400 (putty)
Ultra Tech Cement Nathdwara Binnani Cement Ltd,Amli,Pindwara	4850 (cement)
Ultra Tech Cement (Aditya I & II), Shambhupura, Distt Chittorgarh	8000
Ultra Tech Cement, Kotputali, Distt Jaipur	4000
Wonder Cement, Nimbahera, Distt Chittorgarh	8000
Chemical	
DCM Shriram Industries Ltd, Kota	9 (rayon/yarn) 7.7 (sodium sulphate)
Modi Alkalies & Chemicals Ltd, Alwar	84.2 (caustic soda) 50.3 (Cl), 39.6 (HCl)
Ceramics/Chemicals	
Bikaner Ceramics Pvt. Ltd, Bikaner	9 (insulators)
Kajaria Ceramics Ltd, Gailpur	6.5 (mill. sq m)
Kajaria Ceramics Ltd, Malootana	24.5 (mill. sq m)
Bhalla Chemical Works Pvt Ltd	10 (zirconium oxychloride & special zirconia)
Roca Bathroom Product Pvt Ltd, Alwar	12.9
Roca Bathroom Product Pvt Ltd, Alwar	2 mill. pc.
Fertilizer	
Adheeshaa Phosphate, Umarada, Udaipur	132 (SSP)
Arawali Phosphate Ltd, Umra, Udaipur	40 (SSP)
Arihant Phosphate & Fertlizers Ltd, Nimbaheda, Chittorgarh	66 (SSP)
Bohra Industries Ltd, Umra, Udaipur	200 (SSP)
Chambal Fertilizers & Chemicals Ltd, Gadepan, Kota	180 (SSP)
Coromandel International Ltd, (Formerly) Liberty Phosphate Ltd), Jagpura, Kota	132 (SSP)
Devyani Phosphate Pvt. Ltd, Udaipur	60 (SSP)
Dharamsi Morarji Chemical Co. Ltd, Khemli, Udaipur	66 (SSP)
Gayatri Spinners Ltd, Hamirgarh, Bhilwara	30 (SSP)
Indian Phosphate Ltd, Umrada, Udaipur	130 (SSP)
Jagdamba Phosphate, Kota	132 (SSP)
Jubilant Agri and Consumer Products Ltd, Singhpur, Kapasan, Chittorgarh	264 (SSP)
Khaitan Chemical & Fertilizers Ltd, Dhinwa, Distt Chittorgarh	198 (SSP)
Mangalam Phosphates Ltd, Hamirgarh, Bhilwara	72 (SSP)
Ostwal Phoschem (India) Ltd, Hamirgarh, Bhilwara	132 (SSP)
Patel Phoschem (P) Ltd, Umarda, Udaipur	100 (SSP)
Prem Sakhi Fertx. Ltd, Lakadwas, Udaipur	66 (SSP)

(contd)

Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Rama Phosphates Ltd, Umra, Udaipur	181 (SSP)
Sadhana Phosphates & Chems Ltd, Gudli, Udaipur	120 (SSP)
Shriram Fertilizers & Chemicals Ltd,	379.5 (Urea)
Shriramnagar, Distt Kota	113.8 (caustic soda) 13.2 (bleaching powder) 61.2 (HCl) 61.2 (Cl)
Shri Ganapati Fertilizers Ltd, Kapasan, Chittorgarh	99 (SSP)
Shurvi Colour Chem Ltd, Madri, Udaipur	12 (SSP)
Plaster of Paris	
Abhishek Plaster Industries, Baramsar, Distt Hanumangarh	6.1
Agrawal Industries, Nohar, Distt Hanumangarh	6.3
Balaji Plaster Industries, Taranagar, Distt Churu	6
Balaji Industries, Taranagar, Distt Churu	6.5
Ganesh Plaster Industries, Taranagar, Distt Churu	6
Gil Brothers, Taranagar, Distt Churu	7.1
Hind Plaster Industries, Taranagar, Distt Churu	6
Jaishri Plaster Industries, Taranagar, Distt Churu	6.3
Jagdamba Plaster Industries, Rawatsav, Distt Hanumangarh	7
Coromandel International Ltd, (Formerly Liberty Phosphate Ltd), Jagpura, Kota	132 (SSP)
Devyani Phosphate Pvt. Ltd, Udaipur	60 (SSP)
Dharamsi Morarji Chemical Co. Ltd, Khemli, Udaipur	66 (SSP)
Jai Bhavani Plaster Industries, Baramsar, Distt Hanumangarh	6
Jai Sriram Plaster Industries, Taranagar, Distt Churu	7.1
M.G. Plaster Pvt Ltd, Taranagar, Distt Churu	6.2
Mahabir Plaster Industries, Taranagar, Distt Churu	6
Multani Industries, Nohar, Distt Hanumangarh	8.4
R.D. Plaster Industries, Nohar, Distt Hanumangarh.	8.4
R.N. Industries, Bikaner, Distt Bikaner	18
Shalimar Plaster & Chemical Industries, Sardarshahar, Distt Churu	14
Shri Lakshmi Gypsum, Chak, Distt Hanumangarh	6
Shriram Plaster, Taranagar, Distt Churu	6.3
SS Plaster Industries, Taranagar, Distt Churu	6
Shiv Bhakti Industries, Nohar, Distt. Hanumangarh	8.4
Tiger Plaster, Sardarshahar, Distt Churu	11
The Sardarshahar Plaster & Minerals, Sardarshahar, Distt Churu	19.4
Updesh Industries Ltd, Chak, Distt Hanumangarh	9
Pellet	
Jindal Saw Limited, Pur, Bilwara	1500
Power generation	
JSW Energy Barmer Ltd, Bhadresh.	1080 MW
Copper Smelters	
HCL, KCC, Jhunjhunu.	31 (Cu cathode)
Rajpura Dariba Lead & Zinc Mine	76.827 (Zinc Conc.)
Dariba, Rajsamand	17.506 (lead Conc.)
Lead & Zinc Smelters	
HZL Zinc Smelter, Debari, Distt Udaipur.	88 (Zn)
HZL Lead-zinc Smelter, Chanderiya, Distt Chittorgarh.	85 (Pb) 525 (Zn) 0.833 (Cd)* 168 tonnes (Ag)
HZL, Dariba Smelting Complex, Dariba Distt Rajsamand.	100 (Pb) 210 (Zn)

(contd)

Table - 5 (concld)

** Total for all smelters of HZL*

(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 respectively.*