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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 30 different minerals. Rajasthan is the sole producer of lead & zinc ores, calcite, selenite and wollastonite. Rajasthan was the sole producer of garnet (gem) till 2004-05. Almost entire production of calcite and natural gypsum in the country comes from Rajasthan. The State is a major producer of asbestos, copper conc., ochre, phosphorite/rock phosphate, silver, steatite, ball clay, fluorite and felspar. 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 (87%), gypsum (82%), fuller's earth (74%), diatomite (72%), marble (64%), asbestos (62%), copper ore (50%) and rock phosphate (30%).

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 (hematite)** in Alwar, Dausa, Jaipur, Jhunjhunu, Sikar & Udaipur districts; **iron ore (magnetite)** in Bhilwara, Jhunjhunu & Sikar districts; **lead-zinc** in Zawar in Udaipur district, Bamnia Kalan, Rajpura-Dariba in Rajsamand & Rampura/Agucha in Bhilwara district have also been reported. Lead-zinc occurrences have also been reported from Ajmer, Chittorgarh, Pali and Sirohi districts. **Lignite** deposits are found to occur in Barmer, Bikaner, Jaisalmer and Nagaur 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.

Other important minerals that occur in the State are: **apatite** in Udaipur & Sikar districts; **bauxite** in Kota district; **bentonite** in Barmer,

Table – 1 : Reserves/Resources of Minerals as on 1.4.2010 : 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	1694398	4588	797073	2496059	108785	3065861	3230441	87802	42101	4526861	57800	11119651	13615710
Ballclay	tonne	6275408	350832	2845470	9471710	4301217	1100691	2875062	18676	-	14045369	-	22341015	31812725
Barytes	tonne	134448	11108	77397	222953	6018	4782	103931	37808	311500	2304688	-	2768727	2991680
Bauxite	'000 tonnes	-	-	-	-	-	-	-	-	-	528	-	528	528
Bentonite	tonne	-	11415982	574950	11990932	-	-	-	24356005	222017000	139423096	25730000	411526101	423517033
Calcite	tonne	1261868	38025	1360678	2660571	283227	144688	2642951	539285	1037038	3090782	-	7737971	10398542
China clay	'000 tonnes	70012	7603	22497	100113	11524	14008	29483	1260	4067	271314	749	332405	432517
Copper														
Ore	'000 tonnes	25103	228	75585	100916	3375	-	10253	16513	100256	545858	-	676255	777171
Metal	'000 tonnes	214.73	3.29	973.16	1191.18	3.37	-	10.25	320.48	686.6	2179.09	-	3199.79	4390.97
Corundum	tonne	-	-	-	-	-	-	-	-	-	11925	-	11925	11925
Diatomite	'000 tonnes	-	-	-	-	634	-	-	-	-	1440	-	2074	2074
Dolomite	'000 tonnes	34309	9601	20250	64160	3559	5598	19484	16502	25480	324604	784	396010	460170
Feldspar	tonne	18083327	7793709	8837983	34715019	9839519	4042309	9666832	3154174	668648	25859733	-	53231216	87946235
Fireclay	'000 tonnes	8543	659	5000	14202	195	1071	583	2256	2580	45536	-	52221	66423
Fluorite	tonne	24391	-	41345	65736	608000	592258	520678	1528348	489488	1294529	145183	5178483	5244219
Fuller's Earth	tonne	-	-	-	-	-	-	-	-	350000	189709080	-	190059080	190059080
Garnet	tonne	6251	10700	9299	26250	214	39868	26687	2013	17694	85690	-	172167	198416
Gold														
Ore (primary)	tonne	-	-	-	-	-	-	-	4600000	50193000	59182720	-	113975720	113975720
Metal (primary)	tonne	-	-	-	-	-	-	-	6.67	103.34	107.47	-	217.48	217.48
Granite (Dim. Stone)	'000 cu m	5581	100380	4500	110461	38462	-	-	-	-	9021742	20000	9080204	9190665
Graphite	tonne	-	-	-	-	47600	-	165920	-	250000	1450034	-	1913554	1913554
Gypsum	'000 tonnes	20821	81	15834	36736	3405	63397	3105	750	710604	237550	-	1018810	1055546
Iron ore (Hematite)	'000 tonnes	5169	1152	819	7139	3168	3239	500	-	11510	5004	-	23420	30560
Iron ore (Magnetite)	'000 tonnes	2924	125	1191	4240	-	-	-	-	-	522590	-	522590	526831
Kyanite	tonne	-	-	-	-	13097	-	10606	-	-	-	-	23703	23703

(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						
Laterite	'000 tonnes	-	-	-	-	-	-	-	-	-	60490	62860	123350	123350
Lead-zinc ore	'000 tonnes	20215	82178	287	102680	-	-	3864	13157	200065	287576	190	504852	607532
Lead metal	'000 tonnes	398.42	1706.62	9.21	2114.25	-	-	46.7	272.54	2604.74	5055.46	-	7979.44	10093.69
Zinc metal	'000 tonnes	1938.37	10223.8	11.66	12173.83	-	-	86.91	741.17	8821.59	12950.2	0.53	22600.4	34774.23
Lead-zinc metal	'000 tonnes	-	-	-	-	-	-	-	-	-	117.55	-	117.55	117.55
Limestone	'000 tonnes	1740173	91434	428111	2259717	141539	1607076	4438479	467462	720874	11110360	914330	19400121	21659838
Magnesite	'000 tonnes	1024	57	2045	3126	-	1420	76	-	149	49033	-	50678	53804
Manganese ore	'000 tonnes	1134	-	647	1780	-	-	-	-	-	4030	-	4030	5810
Marble	'000 tonnes	103736	172337	98	276171	-	2037	25606	-	90000	837615	-	955258	1231429
Mica	kg.	7515531	21957	2767649	10305137	13633000	310	927638	48973690	16673890	19831574	50015	100090117	110395254
Ochre	tonne	37586097	178095	13637968	51402160	15626752	11546886	16820861	1824210	896371	19196918	-	65911998	117314158
Potash	Million tonnes	-	-	-	-	-	-	-	-	16936	3462	22	20419	20419
Pyrite	'000 tonnes	-	-	-	-	13667	-	22917	9590	26310	18392	-	90876	90876
Pyrophyllite	tonne	139650	-	187041	326691	54308	38989	110709	232212	68587	277249	-	782054	1108745
Quartzite	'000 tonnes	163	-	86	249	-	18	18	-	-	706	-	742	991
Quartz-silica sand	'000 tonnes	132135	10472	27757	170364	40583	13344	23433	3202	7658	73883	-	162104	332468
Rock phosphate	tonne	14107400	1589807	941200	16638407	20631561	7140437	13382355	152633	79750	29893783	-	71280519	87918926
Sillimanite	tonne	-	-	-	-	300	-	519	-	-	-	-	819	819
Silver														
Ore	tonne	37428349	17220000	123729631	178377980	3375000	88200	5216400	9240000	81580000	128042579	-	227542179	405920159
Metal	tonne	1589.18	1934.4	4498.03	8021.61	270	0.26	50.42	883.8	6022.18	11757.93	-	18984.59	27006.2
Talc-steatite-soapstone	'000 tonnes	28719	2705	14770	46193	6155	7323	19196	1685	837	50768	5	85969	132162
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	2289869	-	197253	2487122	3750545	-	3724191	76088	3325042	1213352	-	12089218	14576340

Figures rounded off.

** Resources of crude oil and natural gas in Rajasthan are included in the Western Offshore areas of India and are not available separately.*

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 and 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** and **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 basin and those of **natural gas** in Jodhpur and Jaisalmer basins in the State.

Exploration & Development

ONGC and OIL continued their seismic survey for petroleum and natural gas. Details of exploration activities conducted by ONGC and OIL for petroleum and natural gas are furnished in Table - 3.

The details of exploration activities conducted by various agencies for lignite and other minerals during 2013-14 are furnished in Table - 4.

Table – 2 : Reserves/resources of Lignite as on 1.4.2014 : Rajasthan

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	**1167.02**	**2671.94**	**1881.39**	**5720.34**
Barmer	495.23	2379.94	1336.58	4211.75
Bikaner	558.79	231.42	305.45	1095.66
Jaisalmer & Barmer	-	-	13.80	13.80
Jalore	-	-	76.08	76.08
Nagaur & Pali	113.00	60.57	79.04	252.61
Jaisalmer	-	-	70.44	70.44

Source: *Coal Directory of India, 2013-14.*

Table – 3 : Exploration for Petroleum & Natural Gas in Rajasthan, during 2013-14

Agency	Seismic Survey		Drilling			
			Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells (No.)	Meterage (Km)	Wells (No.)	Meterage (Km)
ONGC	-	95	-	-	-	-
OIL	-	108	-	-	-	-

Figures rounded off

Table – 4 : Details of Exploration Activities in Rajasthan, 2013-14

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Base metal							
Bhilwara	Kundiyan-Parmeshwarpura and Dhamana-Devariya block	1:12,500	40	-	-	30	Reconnaissance stage investigation (G-4) was carried out to assess the basemetal potentiality for future probing. The different lithologies observed in the area are amphibolites, schist, calc-silicate, quartzite and metabasic rocks of Potla Formation of Mangalwar Complex of Bhilwara Supergroup, calc-silicate, metabasic and metapelitic rocks of Rewara Formation of Pur-Banera Group. Surface indications of sulphide mineralisation are found in well dumps in the NW of Bamaniya area in the form of profuse malachite stains, veinlets, stringers & disseminations of chalcopyrite, pyrite and pyrrhotite in metabasic rock and in isolated outcrops in NW of Dhamana, SE of Kundiyan, Parmeshwarpura and Somarwaro-ka-Khera areas in the form of malachite stains, veinlets, stringers and disseminations of bornite, covellite, chalcopyrite and pyrite in calc-silicate rock.
Alwar	Khera Block, Mundiyawas-Khera area	-	-	-	308.55	-	Prospecting stage investigation (G-3) was carried out in North Delhi Fold belt to evaluate the depth potential of copper and precious metal mineralisation. During 2013-14, a total of 308.55 m drilling was carried out in three boreholes KBH-11 to KBH-13. The borehole KBH-11 intersected sulphide mineralisation from 44.55 m to 78.65 m depth. The sulphide mineralisation is present in the form of foliation-parallel fine disseminations of arsenopyrite and fracture and vein-filled coarse-grained chalcopyrite with minor pyrrhotite. The borehole KBH-12 intersected sulphide mineralisation in the form of occasional specks, stringers and fracture-filled pyrrhotite, chalcopyrite and arsenopyrite from 6 m to 100 m depth. The borehole KBH-13 intersected sulphide mineralisation in the form of specks, fracture and vein-filled pyrrhotite with minor chalcopyrite and arsenopyrite from 6 m depth onwards.
-do-	Khera SE Block, Mundiyawas-Khera area	-	-	3	392.20	-	Reconnaissance stage investigation (G-4) was carried out to evaluate the subsurface potential of Cu and precious metal mineralisation. The rock types exposed in the Khera SE block are interbanded sequence of felsic volcanic

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							rocks (lithic tuff), meta-greywacke, quartzite, phyllite, carbon phyllite and tremolite-bearing dolomitic marble of the Thanagazi Formation of the Ajabgarh Group of the Delhi Supergroup. A total of 392.20 m drilling has been carried out in three boreholes KEBH-1 to KEBH-3. The borehole KEBH-1 has intersected sulphides in the form of chalcopyrite, arsenopyrite and pyrrhotite, besides native copper, bornite and covellite from 67.20 m to 87.85 m depth within dolomitic marble. The borehole KEBH-2 has intersected phyllite and dolomitic marble with specks of pyrrhotite and chalcopyrite between 61.0 m and 65.0 m, 92.70 m and 95.80 m, 114.0 m and 117.0 m and 122.0 m to 127.0 m depths. The borehole KEBH-3 has intersected occasional specks, occasional disseminations, stringers, vein-filled and fracture-filled chalcopyrite, pyrrhotite and arsenopyrite from 70.0 m to 106.65 m depth in dolomitic marble intercalated with thin quartzite bands.
Alwar	Mundiyawas block, Mundiyawas-Khera area	1:25,000 1:50,000 1:2,000	50 1.8	-	-	145	Reconnaissance stage investigation (G-4) for basemetal was carried out to evaluate the potentiality of Cu and precious metal mineralisation. Aerial reconnaissance and PGRS 1:25000/ 1:50000 of 50 km^2 and DM (1:2000) of 1.8 km^2 area along with collection of 135 BRS/PTS/SS and 10 channel samples has been accomplished. The study area exposes the rocks of Thanagazi Formation of Ajabgarh Group of Delhi Supergroup. The main rock types observed are mica schist, quartzite, carbon phyllite, felsic volcanics, dolomite and amphibole-bearing dolomite with some intrusive quartz and calcite veins. Mineralisation is manifested by malachite stains and presence of rare specks and disseminations of chalcopyrite and arsenopyrite within dolomite observed on the western side of Bal-ki-Dhani, north of Mundi-awas-ki-Dhani. Profuse malachite staining is observed in tremolite-bearing dolomite on north west of Mundi-awas-ki-Dhani.
Sikar	Nanagwas area	-	-	6	920.65	-	Prospecting stage investigation (G-3) was carried out to test subsurface continuity of basemetal mineralisation and associated precious metals. A total of 920.65 m has been drilled in six

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	(No.)	Reserves/Resources estimated
							boreholes WNBH-5 to KEBH-10. The boreholes intersected sulphide mineralisation in the form of specks, disseminations, fracture filling and veinlets of chalcopyrite, bornite, covellite and pyrite. Details of sulphide mineralisation zones intersected in boreholes are furnished below: **Borehole number** — **Depth of intersection of mineralised zone** WNBH-5 — 30.10 m to 41.65 m & 56.45 m to 79 m WNBH-6 — 37 m to 40.8 m & 51.50 m to 58.4 m WNBH-7 — 84.3 to 90.5 m WNBH-8 — 65.05 m to 74.35 m WNBH-9 — 57.9 m to 68.85 m & 73.75 to 98.75 m WNBH-10 — 44.9 to 48.65 m, 57.2 m to 63.4 m & 78.90 m to 94.35 m
Sikar	North Delhi fold belt in Dariba North Block	-	-	4	595.90	-	Prospecting stage investigation (G-3) was carried out to assess zones of basemetal mineralisation and associated precious metals through subsurface probing and to trace the northern continuity of subsurface sulphide mineralisation, which has already been established by drilling in the southern continuation of Dariba North Block. During 2013-14, a total of 595.90 m has been drilled in four boreholes DNBH-6 to DNBH-9. The details of the sulphide mineralisation intersected in boreholes are as below: **Borehole no.** — **Cu mineralisation** DNBH-6 — 1 m x 0.39% Cu 6.0 m (True width) x 0.36 % Cu 0.5 m x 0.26% Cu 0.5 m x 0.42% Cu 0.5 m x 0.28% Cu 1.6 m x 0.29% Cu DNBH-7 — 0.5 m x 0.14% Cu 0.6 m x 0.38% Cu 1.0 m x 0.32 % Cu 1.0 m x 0.24% Cu 0.5 m x 0.11% Cu DNBH-8 — 1.7 m x 0.40% Cu 0.5 m x 0.21% Cu 0.5 m x 0.20% Cu 0.5 m x 0.12% Cu DNBH-9 The mineralisation mostly occurs in the form of fine, dusty foliation-parallel disseminations, streaks, stringers, veins and specks of bornite, covellite, chalcopyrite and pyrrhotite. (Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Sikar	Palaswala-ki-Dhani Block	-	-	2	298.70	-	Reconnaissance stage investigation (G-4) for basemetal was carried out to test the subsurface continuity of the basemetal mineralisation and associated precious metals delineated on surface in Palaswala-ki-Dhani block. A total of 298.70 m has been drilled in two boreholes PDBH-1 to PDBH-2. The borehole PDBH-1 has intersected a mineralised zone of 12.80 m with 0.32% Cu at cut-off 0.2%, within this 8.45 m with 0.41% Cu at cut off 0.4% between 73.80 m and 100.80 m depth. The mineralisation is present in the form of fine dissemination of pyrite, chalcopyrite, bornite and chalcocite mainly restricted to quartz and calcite veins and occasional grains of specularite. The borehole PDBH-2 has intersected a mineralised zone of 6.20 m with 0.21% Cu between 92.85 m and 109.40 m depth.
-do-	Teliwala-Ramliyas Block	1: 2,000	1.3	-	-	284	Reconnaissance stage investigation (G-4) for basemetal was carried out to delineate the zones of basemetal mineralisation and associated precious metals. The area exposes rocks belonging to the Kushalgarh Formation of Ajabgarh Group of Delhi Supergroup. The lithounits exposed in the block are amphibole-bearing marble, dolomitic marble and scapolite-bearing banded calc-silicates with quartz and calcite veins. Sulphide mineralisation is manifested in the form of malachite stains, chalcopyrite and bornite. At places, pyrites have been recorded in veins cutting across the main foliation. The average width of exposed mineralised zones varies from 20 to 30 m, with 1 km strike length.
Ajmer	Chandlyawas	1:10,000	47.5	-	-	187	Reconnaissance stage investigation (G-4) for identification of target areas for basemetal exploration was carried out to trace the north-eastern extension of Kayer basemetal deposit. The area exposes rocks belonging to the Delhi Supergroup comprising quartz-mica schist, calc-silicate rock, quartzite, amphibolite and very thin lenticular bodies of carbonaceous schist. Quartz-mica schist is the host rock for sulphide mineralisation. Surface indications of mineralisation include malachite staining and fresh sulphides in dug well samples. Analytical results (Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							of 21 BRS show 10 ppm to 0.62% Zn, 10 ppm to 110 ppm Cu and < 25 to 180 ppm Pb.
Udaipur	Chari NW block	1:2,000	0.8	-	-	423	Reconnaissance stage investigation (G-4) was carried out in South Delhi Fold belt to evaluate the northwestern extension of Chari copper deposit and to identify target areas for sulphide mineralisation. The rock types exposed in the area belong to the Debari Group of the Proterozoic Aravalli Supergroup. The important lithounits exposed are chlorite schist, basic metavolcanics, amphibolite, gabbro, quartzite, phyllite and quartz and carbonate veins. Metavolcanics is the host rock for basemetal mineralisation. Surface indications of mineralisation include malachite staining and fresh sulphides in old working rubbles.
Sirohi	Bhimana and Kivarli blocks	1:2,000	0.88	-	-	263	Reconnaissance stage investigation (G-4) was carried out for delineation of target areas for identification of basemetal mineralised zones for future follow up investigation. The rock types exposed in the area include quartz-plagioclase- chlorite (Hb) rock, chlorite schist, metabasic and quartz veins. A small patch of oxidation zone with muscovite development is recorded in the northeastern part of the Bhimana Block, which coincides with an IP anomaly that extends for about 250 m. The analytical results are awaited.
Jhunjhunu	Area situated between already explored Bokri and Malwali prospects of the Eastern Khetri Metallotect	1:25,000 1:50,000 1:10,000 1: 2,000	100 50 0.2	-	-	23	Reconnaissance stage investigation (G-4) was carried out for copper and associated minerals to assess the basemetal potentiality in the gap area. The rocks exposed in the area form part of the Proterozoic Delhi Supergroup. The lithounits exposed in the area include quartz-mica schist, micaceous quartzite, calc-silicate rock, dolomite, chlorite-magnetite-garnet schist, carbonaceous phyllite, iron ore represented by magnetite and hematite, alkali aplite, amphibolite and dolerite dykes, pegmatite, quartz-porphyry and quartz veins. Old workings along the fault zone and also in carbonate rocks were recorded.
Bhilwara	Kamalpura Block, Pur-Banera Belt	-	-	3	200.5	-	Reconnaissance stage investigation (G-4) was carried out for copper and tungsten to test the surface copper anomalies at depth by drilling and prospecting of tungsten. The copper (Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							mineralisation in the Kamalpura Block is confined to garnetiferous amphibole-mica schist and calc-silicate rock. The sulphide mineralisation occurs as fine disseminations of chalcopyrite and pyrrhotite and occasional bornite. A total of 200.50 m has been drilled out in three boreholes KMB-1 to KMB-3. The borehole KMB-1 has intersected two mineralised zones of 4.75 m and 6.30 m width with 0.34 % and 0.65 % Cu, respectively. The third borehole KMB-3 intersected three mineralised zones of 18 m, 10 m and 7 m width with 0.30, 0.40 and 0.40 % Cu (VE) respectively.
Gold							
Banswara	Jagpura area	-	-	-	-	-	Prospecting stage investigation (G-3) was carried out to assess the potentiality of gold-copper mineralisation. Three mineralised zones of 400 m strike length and each with the exposed width from 5 m to 30 m having average gold content of 1.18 ppm were delineated. The drilling in each zone intersected the surface mineralised zones besides some additional zones. The cumulative thickness of sulphide zones intersected in 8 boreholes ranges from 60 m to 114.15 m with total sulphides ranging from 0.5% to 2%. The sulphide minerals include pyrrhotite, pyrite chalcopyrite and arsenopyrite. Analytical results are awaited.
-do-	Gundelapara South Block	1:2,000	0.73	-	-	235	Reconnaissance stage investigation (G-4) was carried out to delineate potential zones for gold and associated base metal mineralisation for future exploration. The area exposes rocks belonging to Jagpura Formation of Debari Group of the Paleoproterozoic Aravalli Supergroup comprising impure marble, albite-rich rock, calc-silicate, amphibolite, pegmatite and. quartz vein. Four mineralised zones were identified at the eastern contact of impure marble and albite-rich rock and in the calc-silicate rock on the basis of surface features such as ferruginisation malachite staining. Seven to ten metre thick two ferruginised impure marble bands are present in the western part of area. The northern band is about 50 m long. Analytical results of channel samples collected from northern impure marble band indicate presence of 7 m thick zone having 0.16 ppm average gold with 0.14% copper. The second band is nearly 550 m long. Analytical results of channel samples collected

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	(No.)	Reserves/Resources estimated
							from the second band indicate presence of 3 m thick zone with 0.14% average copper at 0.1% cut-off. Three patches of ferruginised albite-rich rock having cumulative strike length of about 100 m with 5 to 20 m width have been observed in the mapped area. Old workings are recorded in the eastern part of the area within impure marble as well as in calc-silicate and also at the contact of these units.
Banswara, Udaipur and Dungarpur	Areas between Khamera and Devla Pal	1:10,000	66	-	-	181	Reconnaissance stage investigation (G-4) was carried out to assess the potentiality of gold-copper mineralisation. The area exposes rocks of Debari Group of Aravalli Supergroup comprising magnetite-bearing schist, staurolite-bearing schist, quartzite, dolomitic marble and amphibolite with quartz, carbonate and pegmatite veins. Some old workings in association with malachite staining and ferruginisation are recorded from the calc-silicate and carbonate bands present within magnetite-bearing schist. Seven ferruginised/gossanised zones were recorded.
Iron Ore							
Karauli, Sawai Madhopur, Tonk, Bundi and Bhilwara	Karauli-Bundi area	1:25,000	130	-	-	45	Reconnaissance stage (G-4) investigation was carried out to delineate iron ore bodies in the rocks of Hindoli Group for future probing.
Bundi	Korma area (Bundi district)	1:25,000	25	-	-	15	The main litho units exposed in the area are chert breccia, ferruginous chert breccia and quartzite with small patches of shale/porcelanite and dolomite at places. Ferruginous body has been mapped on 1:25,000 scale of about 25 km^2 in Korma area, Bundi district. The main litho units exposed in this area are ferruginous breccia, phyllite and dolomite with quartz veins. A number of old workings of variable dimensions have been observed near Khiniya and Korma areas. The ore bodies mainly consist of hematite. XRF analysis of 15 grab samples of iron ore body reveals Fe_2O_3 content of 34% (nearly 20 % Fe).
Lignite							
Jaisalmer and Bikaner	Kharicharan area, Palana basin	-	-	7	653.5	-	Promotional exploration under G-4 stage continued to locate lignite-bearing blocks, stratigraphic set up of the area and preliminary assessment of resource. A total of 653.5 m drilling has been done in seven boreholes RPKS-10 to 16 without intersecting any lignite seam. Investigation was closed on 24.05.2013.

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Lignite							
Jaisalmer nd Bikaner	Panna sector, Palana basin	-	-	7	2124.5	-	Promotional exploration under G-4 stage was initiated to locate lignite-bearing blocks, stratigraphic set up of the area and preliminary assessment of resource. A total of 2124.5 m was drilled in ten boreholes RPP- 1 to 10 and 1256.80 m was geophysically logged to ascertain the presence of lignite zones. The maximum thickness of lignite seam intersected is of 1 m at 83 m depth along with thinner bands of about 0.1 m to 0.8 m thickness within a depth of 83 m to 118.35 m. Investigation is under progress.
Limestone							
Jaisalmer	Minyun-ki-Dhani East Block-A	1:5,000	2.5	9	443	-	Prospecting stage investigation (G-3) was carried out to locate low silica SMS & LD-grade limestone. The area exposes scattered outcrops of calcrete, ferricrete, gritty ferruginous sandstone, gritty weathered sandstone and foraminiferal limestone. Drilling established 25m to 30m thickness of limestone with CaO ranging from 48% to 54%, which qualifies for cement grade. The SMS grade has to be ascertained after the decrepitating test is performed.
-do-	Sabbu-ka-Toba, Block-A, AsuTar area	1:5,000	2.8	10	452	252	Prospecting stage investigation (G-3) was carried out to locate low-silica SMS and LD-grade limestone. The area exposes scattered outcrops of hard, nodular impure limestone & gritty ferruginous sandstone/nodular iron-stone. A total of 452 m drilling has been completed in ten boreholes up to a depth of about 50 m b.g.l. The lithology intersected in the boreholes is few metres of loose sand followed by a thick limestone horizon made up of hard, impure chalky limestone, few thin bands of hard & compact limestone & clayey limestone up to a depth of about 30 m, followed by clays up to 50 m. Core samples from seven boreholes have been submitted for chemical analysis. Analytical results are awaited.
Phosphorite							
Rajsamand	Lai- Madri and Karoli-ki-Dhani area	1:25,000 1:50,000 1:25,000 1:5,000	70 100 1.5	-	-	130	Reconnaissance stage investigation (G-4) was carried out to identify the potential target areas of phosphorite for detailed investigation. The area exposes quartzite, dolomite/dolomitic marble, metavolcanics of Nathdwara Group belonging to the Aravalli Supergroup. Ferruginous chert unit occurring in the form of discontinuous massive parallel bands and as lenses (Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							within the dolomitic marble is hosting the phosphorite mineralisation. The general thickness of these bands varies between 5 m and 25 m, where as the strike length varies between 50 m and 500 m. Based on the Shapiro's kit analysis, a zone of 50m x 5m with 10 to 12% P_2O_5 has been demarcated.
RM/REE							
Pali	Dhani granite	1:2,000	0.7	-	-	156	Reconnaissance stage investigation (G-4) was carried out to assess the potentiality of REE mineralisation. A quantum of 188 metres of drilling has been accomplished. The area is represented by Dhani granite, Erinpura granite and Sirohi Group of metasediments comprising alternate sequence of biotite schist, quartzite and impure carbonate rocks. Nine scout boreholes were drilled in Dhani area during FS 2010-12, 2012-13 and 2013-14. Six boreholes DGBH-3 to DGBH-8 were drilled in 2012-13, out of which 5 boreholes, viz. DGBH-3, DGBH-4, DGBH-5, DGBH-6 and DGBH-7 encountered 13 REE-rich zones at cut-off grade 0.1% total REE and width 1 m. The borehole DGBH-9 drilled during FS 2013-14 encountered 1 REE-rich zone of 0.54 m at cut-off grade 0.1% total REE and width 1 m. EPMA study indicated the presence of synchysite (Ce) and monazite in altered Dhani granite intersected in borehole DGBH-3 during 2012-13. Two bed rock samples from highly kaolinised rocks show REE of 0.206% and 0.545%, respectively.
Jhunjhunu	Gothara granite of Khetri Fold Belt	1:12,500 1:2,000	19 0.49	-	-	224	Reconnaissance stage investigation (G-4) was carried out to assess the potentiality of REE mineralisation. Within the mapped area, the rocks exposed are metasedimentaries of NDFB, post-tectonic intrusive granites (Gothara granite), basic dykes and later quartz veins. The metasediments comprise amphibole quartzite, magnetite-bearing quartzite, garnetiferous mica schist, staurolite schist and calc-silicates. A cluster of old workings were found east of Rajota located 50 m south of the granite contact within the metasedimentary rock. Sulphide mineralisation in the form of malachite staining and specks of chalcopyrite, pyrite, covellite and bornite has been observed within the dump material. Out of 90 bed rock samples collected from the LSM area 31 yielded " REE > 500 ppm and 10 (Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	(No.)	Reserves/Resources estimated
							samples yielded "REE ranging from 0.1% to 1%. Out of 134 grid bed rock samples collected from the DM (1: 2000) area, the result of 21 samples has been received so far. Out of these 21 samples, 7 samples yielded a "REE > 500 ppm and 2 samples yielded a " REE > 1000 ppm.
NLC							
Lignite							
Bikaner	N/v Kenya-ki-Basti and Diyatra	-	-	25	4314.5	194	Geological reserves of 15.40 million tonnes of lignite have been computed.
-do-	N/v Ambasar, Barsinghsar and Hadla	-	-	2	349	-	Lignite is not encountered in two drilled boreholes.
Barmer	Baytu block	-	-	18	7214.7	14	Work was in progress.
	Bhurtiya block	-	-	45	15014.9	221	
	Matasar Tala block	-	-	5	2902	12	
Nagaur	Phalodi, Gangardi & Ucharda blocks	-	-	23	5008.96	94	Work was in progress.
	Deswal block	-	-	4	866.3	1	
Jaisalmer	Aslai-Soda	-	-	4	356	-	Work was completed.
Rajasthan State Mines & Minerals Ltd							
Rock Phosphate							
Udaipur	Jhamarkotra Mines	-	-	-	-	-	Total 149.5 m drilling was carried out in 02 boreholes. As on 1.4.2014, the balance resources and reserves are placed at 49.39 and 28.754 million tonnes, respectively.
State Directorate of Geology and Mining							
Bentonite							
Barmer	N/v Devka,	1 cm = 500 m	100	-	-	-	Total three plots of bentonite each of 2 ha were delineated N/v Devka.
	Pusad and	1 cm = 100 m	5	-	-	-	
	Rajral	1 cm = 20 m	3	-	-	-	
Decorative Stone/Masonary Stone							
Jaipur, Sikar	-	1:10,000	11	-	-	-	Investigation is aimed to assess marketable and blockable granite/marble areas.
and Jhunjhunu	-	1:4,000	5.27	-	-	-	
Dolomite							
Udaipur	N/v Selu,	1:10,000	10	-	-	-	-
	Bansaliya, Sangat and Kaloda	1:4,000	01	-	-	-	
Granite							
Bhilwara	N/v Nareli,	-	10	-	-	-	-
	Duwala etc.	-	05	-	-	-	
Jalore	N/v Dhawala	1:4,000	02	-	-	-	Preliminary survey has been carried out to locate the blockable granite.

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	(No.)	Reserves/Resources estimated
Gluconite (Potash) bearing Shale & Sand Stone							The Glauconitic shale has low potash value (K_2O 2.13 to 2.49% and Na_2O 0.91% to 2.79%.
Chittorgarh	N/v Abapur,	-	150	-	-	15	
	Bhimpuriya	-	10	-	-	-	
	and Achalpura	-	01	-	-	-	
Gypsum							-
Hanumangarh	N/v Baramsar,	1 cm = 100 m	06	-	-	12	
	Ramka	1 cm = 20 m	04	-	-	-	
Limestone							Reserves not computed. Analytical results of core samples awaited.
Chittorgarh	N/v Anjankhera-Nilod	1 :4,000	04	08	435	141	
							-
Churu	N/v Asrasar,	1 cm = 500 m	300	-	-	12	
	Telap and	1 cm = 100 cm	10	-	-	-	
	Mundra	1 cm = 20 cm	03	-	-	-	
Jaipur & Alwar	N/v Bithloda, Mandha, Bhankri Karoi etc.	-	-	04	404.5	140	Limestone/impure limestone was encountered at various depths.
Jaisalmer	N/v Sam (Rahu-ki-Par)	1:50,000	100	28	1299	715	Resources of cement grade limestone assessed at 204 million tonnes.
		1:10,000	15	-	-	-	
		1:2,000	05	-	-	-	
Nagaur	N/v Harima and Khetolav	1 cm = 20 m	2.25	25	1000	508	Geological reserves of 64.93 million tonnes of cement grade limestone was inferred.
-do-	Block-I, N/v Bhed-Ghodhan	1 cm = 100 m	15	21	734.5	225	Geological reserves of 36.67 million tonnes in Block-I and 36.28 million tonnes in Block-II were inferred.
	Block - II N/v Taras-Charda	1 cm = 20 m	02	-	-	-	
Sirohi	Parts of Teh. Pindwara	1:10,000	05	-	-	20	About 16 million tonnes reserves of limestone is expected from the area.
		1:4,000	02	-	-	-	
							-
Udaipur	N/v Ghasa	1:50,000	200	-	-	45	
	Palana,	1:10,000	15	-	-	-	
	Thamla, etc.	1:4,000	1.5	-	-	-	
Quartz, Orthoquartzite, Limestone Silica Sand, Soapstone, Ochre, etc.							Impure limestone/dolomitic limestone was observed in pits N/v Raori and Chainpura.
Jaipur	Various villages of Jamwa, Ramgarh and Bassi tehsils	1:50,000	202	-	-	16	
		1:10,000	16	-	-	-	
Red Ochre, Yellow Ochre, Quartz, Masonary Stone							Quartz veins with cumulative thickness of 10 m and hard & compact quartzite were observed.
Alwar	Tintpur	1:10,000	10	-	-	20	
		1:4,000	01	-	-	-	
Rock Phosphate							No rock phosphate deposit was located.
Udaipur	N/v Bagurwa,	1:50,000	160	-	-	51	
	Adwas,	1:10,000	10	-	-	-	
	Ajabara, etc.	1:4,000	01	-	-	-	

(Contd.)

Table – 4 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks
		Scale	Area (sq km)	No. of boreholes	Meterage	(No.)	Reserves/Resources estimated
Soapstone, Magnesite, Kyanite, etc.							
Ajmer	N/v Arjunpura	1:50,000	160	-	-	40	Dolomitic limestone was located at various localities.
	Kothaj,	1:10,000	10	-	-	-	
	Makreda, etc.	1:2,000	01	-	-	-	
Masonary Stone							
Bhilwara and Rajsamand	N/v Khamore Saroth and Amner	1:10,000	20	-	-	-	Calc-silicate and amphibolite rocks are located in the area.
		1:4,000	5.27	-	-	-	
Masonary Stone, Granite, Marble, Phyllite, Schist							
Ajmer and Tonk	-	1:50,000	100	-	-	-	Total 55 plots were delineated of size one ha each for masonry stone.
	-	1:10,000	11	-	-	-	
		1:2,000	4.50	-	-	-	
Masonary Stone/Phyllite & Basalt							
Jalore	Raniwara tehsil	1:10,000	05	-	-	7	Areas suitable for the masonry stone were mapped N/v Tavidar, Tavidar choraha and Padavi and plots were also delineated.
		1:4,000	1	-	-	-	
Masonary Stone & Sandstone							
Alwar, Bharatpur & Dhaulpur	-	-	6.75	-	-	8	Total 67 plots of 1- 4 ha size were delineated for masonry stone and sand stone.
Rhyolite							
Barmer	N/v Asada,	1:50,000	200	-	-	20	Total 35 plots of one ha each were delineated.
	Jasol and	1:10,000	5	-	-	-	
	Variya	1:2,000	2	-	-	-	
-do-	N/v Luma,	1:50,000	150	-	-	-	A total of 40 plots were delineated for masonry stone of one ha each.
	Bisala,	1:10,000	5	-	-	-	
	Somaniyou ki Dhani	1:2,000	1.50	-	-	-	
-do-	N/v Kuship,	1:50,000	250	-	-	22	N/v Thapan total 86 plots for masonry stone have been proposed of one ha each.
	Hinglajmata,	1:10,000	25	-	-	-	
	Kerlipahari, Indrana, Thapan etc.	1:2,000	02	-	-	-	
Rhyolite (Masonary Stone)							
Jaisalmer	N/v Pokaran	1:50,000	150	-	-	12	About 0.25 sq km potential area of rhyolite N/v Bukna and south of Pokaran tehsil were observed.
	Barli etc.	1:1,000	10	-	-	-	
		1:2,000	1	-	-	-	
Sandstone, Masonary Stone & Limestone							
Bundi	N/v Chatarganj,	1:50,000	155	-	-	12	Reserves of masonry stone and limestone are estimated at 80 million tonnes and 0.726 million tonnes, respectively.
	Gordhanpura,	1:10,000	10	-	-	-	
	Chauhada etc.	1:2,000	1.75	-	-	-	
Siliceous yellowish Limestone (Masonary Stone)							
Jaisalmer	N/v Polji-ki	1:50,000	50	-	-	5	Occurrences of yellowish brownish coloured limestone was observed in about 0.50 sq km area and 20 plots for masonry stone were delineated N/v Bhinya.
	Dehri, Bhinya	1:10,000	10	-	-	-	
	Jaga etc.	1:2,000	2	-	-	-	
Splittable Sandstone and Masonary Stone							
Jhalawar & Baran	N/v Kham Khera,	1:50,000	150	-	-	-	A total reserves of sandstone in non-forest areas are calculated about 13.725 million tonnes.
	Nanera, Mawasa,	1:10,000	11	-	-	-	
	Pathariya Lambawar etc.	1:2,000	1.50	-	-	-	

(Contd.)

Table – 4 (Concld.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of borehole	Meterage		
Splittable	**Schist/Phyllite**						
Dungarpur	N/v Balwara,	1:50000	50	-	-	13	-
	Mara, Ghata	1:10000	5	-	-	-	
	etc.	1:2000	3	-	-	-	

Production

The value of mineral production in Rajasthan during 2013-14 at ₹ 32,601 crore increased by 4% as compared to the previous year. The state contributed about 12% in the total value of mineral production in the country and occupied second position among the states in 2013-14. Of the total value 51% came from petroleum (crude) alone. It is the richest state in the variety of minerals in the country and produced about 30 types of minerals excluding minor minerals. Rajasthan was the sole producer of lead and zinc ores and concentrate, selenite and wollastonite. Almost entire production of silver, calcite and gypsum in the country was reported from the state during 2013-14.

Rajasthan was the leading producer of ball clay accounting for 92%, phosphorite 91%, ochre 88%, steatite 83%, felspar 59% and fireclay 44% of the total production in the country. Besides, it was the second leading producer of copper concentrates contributing 33%, petroleum (crude) 24%, limestone 20%, kaolin 17% and quartz 14% of the nation's output for the year 2013-14. Among the production of important minerals, iron ore production increased to about thrice while the increase in natural gas (ut.) was (43%), dolomite (34%), wollastonite (32%), calcite (24%), kaolin (22%) , quartz (15%), ball clay (12%), manganese ore and lignite (8% each), limestone, lead & zinc ores and petroleum (crude) (7% each), copper concentrates (6%), lead conc. (5%) and copper ore (2%). While a nominal decrease in production was noticed in zinc concentrates, the decrease in garnet (abrasive) was (1%), silica sand (2%), steatite and silver (6% each), felspar and quartzite (7% each), clay (others) (8%), gypsum (18%), ochre (19%), fireclay (23%), barytes (24%), phosphorite (26%), pyrophyllite (88%) and selenite (93%) as compared to that in the previous year (Table-5).

The value of production of minor minerals was estimated at ₹ 7,557 crore for the year 2013-14.

The number of reporting mines in Rajasthan ware 556 in the year 2013-14 as against 508 in previous year.

The index of mineral production in Rajasthan (base 2004-05 = 100) was 208.9 in 2013-14 as compared to 201.2 in the previous year.

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, the important large and medium-scale mineral-based industries in the organised sector in the State are given in Table - 6.

Table – 5 : Mineral Production in Rajasthan, 2011-12 to 2013-14 (P)
(Excluding Atomic Minerals)

(Value in ₹ '000)

Mineral	Unit	2011-12			2012-13			2013-14 (P)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		**418**		**247321485**	**508**		**312342126**	**556**		**326006814**
Lignite	'000t	4	2963	1161800	6	7081	2776600	6	7627	5136100
Natural Gas (ut.)	m c m	-	590	4244057	-	685	5665038	-	982	8121266
Petroleum(crude)	'000t	-	6552	119036428	-	8593	156184417	-	9180	166853596
Copper Ore	t	-	1000485	-	-	982926	-	-	1003012	-
Copper Conc.	t	2	41450	1993078	2	43245	2876500	2	45656	2850652
Iron Ore	'000t	2	32	8006	2	235	198144	3	696	1895393
Lead & Zinc Ore	t	-	8041881	-	-	8633411	-	-	9252137	-
Lead Conc.	t	6	161854	2454497	8	184486	3300883	8	194426	4303052
Zinc Conc.	t	*	1414009	19862214	*	1492781	23948683	*	1490662	27421597
Manganese Ore	t	1	7483	14966	1	4987	12737	1	5401	14444
Silver**	kg	-	206942	11550277	-	373901	21225078	-	349620	15772144
Phosphorite	t	2	2019584	7337111	2	1692806	6580617	2	1252533	4247799
Asbestos	t	2	-	-	2	-	-	1	-	-
Ball Clay	t	39	1351705	598843	32	1541981	665585	33	1722103	826463
Barytes	t	1	8055	4416	1	7352	4783	1	5560	3617
Calcite	t	3	54081	20835	6	72698	26414	4	90086	32611
Clay (others)	t	6	50	12	8	152534	34361	8	140298	81173
Dolomite	t	1	239639	40550	1	224826	45243	1	300531	57584
Felspar	t	95	488365	159571	166	892257	245970	200	833458	237078
Fireclay	t	11	447615	88291	10	410331	87771	11	313927	88028
Fluorite(graded)	t	1	196	561	-	-	-	-	-	-
Garnet (abrasive)	t	-	-	-	1	614	565	1	605	622
Gypsum	t	33	3937375	1674326	29	3510063	1685212	32	2894921	1374913
Kaolin	t	18	512145	104587	37	662362	355559	59	806189	344070
Laterite	t	1	-	-	-	-	-	1	-	-
Limestone	'000t	25	47982	8113633	26	52540	9192487	25	56328	9109507
Mica (crude)	t	5	114	2833	4	79	1975	5	-	-
Mica (waste & scrap)#	t	-	2241	-	-	5119	-	-	4672	-
Ochre	t	17	1326438	230002	13	1676067	546696	14	1365658	449238
Pyrophyllite	t	-	-	-	1	7697	1145	1	939	235
Quartz	t	56	114632	22485	65	173448	40937	50	199801	49148
Quartzite	t	1	7648	3327	1	4489	669	1	4187	1256
Silica Sand	t	16	755074	169043	13	626336	250040	13	611164	263490
Sand (others)	t	-	-	-	-	-	-	3	5280	803
Talc/steatite/ soapstone	t	63	738877	634367	65	766742	681223	64	717704	744080
Selenite	t	3	13047	16105	3	7577	10226	2	532	708
Wollastonite	t	4	184445	159974	3	145667	127468	4	192642	157047
Minor Minerals@		-	-	67615290	-	-	75569100	-	-	75569100

Note: *The number of mines excludes natural gas (utilised) and minor minerals.*
** Number of mines covered under lead concentrates.*
*** Recovered at Chanderiya Lead-Zinc Smelter of HZL from lead concentrates produced in Rajasthan.*
 # Includes mine waste and that obtained while dressing of crude mica.
@ Figures for earlier years have been repeated as estimates,wherever necessary, because of non-receipt of data.

Table – 6 : Principal Mineral-based Industries in Rajasthan

Industry/plant	Capacity ('000 tpy)
Cement	
ACC Ltd, Lakheri, Distt. Bundi.	1500
Ambuja Cements Ltd, Rabriyawas, Distt. Pali.	1800
Binani Cement, Binanipuram, Distt. Sirohi.	4850
Binani Cement, Sikar (G).	1400
Birla Corporation Ltd, Chittorgarh	
Birla Cement Works.	720
Chanderia Cement Works.	1280
J.K.Cement, Nimbahera, Distt. Chittorgarh.	3300
J.K.Cement, Mangrol.	750
J.K.Cement, Gotan.	470
J.K. White Cement Works, Gotan, Distt. Nagaur.	410
J.K.Laxmi Cement, Banas, Distt. Sirohi.	4200
Lafarge India Ltd, Nimbahera, Distt. Chittorgarh.	1970
Manglam Cement (Manglam Cement & Neer Shree Cement), Morak, Distt. Kota.	3250
Shree Cement Ltd,	
Beawar, Distt. Ajmer.	3800
Ras, Distt. Pali.	4000
Ras (New Unit), Distt. Pali.	2000
Kushkhera, Distt. Alwar (G).	4000
Suratgarh, Distt. Sri Ganganagar (G).	2000
Jobner, Distt. Jaipur (G).	2000
Shriram Cement Works, Kota.	400
Trinetra Cement (India Cement), Nokhala, Distt. Banswara	1800
Udaipur Cement Works (J.K.Udaipur Udyog Ltd), Udaipur.	900
Ultra Tech Cement (Birla White Cement Division), Kharia Khangar, Distt. Jodhpur.	560 (white cement)
Ultra Tech Cement (Aditya I & II), Shambhupura, Distt. Chittorgarh.	5000
Ultra Tech Cement, Kotputali, Distt. Jaipur.	3100
Wonder Cement, Nimbahera, Distt. Chittorgarh.	3300
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	
Bikaner Ceramics Pvt. Ltd, Bikaner.	2.2
Kajaria Ceramics Ltd, Bhiwadi.	16.7 (million sq m)
Bhalla Chemical Works Pvt Ltd.	10 (zirconium Oxychloride & special Zirconia)
Fertilizer	
Chambal Fertilizer & Chemical Ltd, Gadepan (Unit I & II), Distt. Kota.	1729.2 (urea)
Khaitan Chemical & Fertilizers Ltd, Dhinwa, Distt. Chittorgarh.	200 (SSP)
Shriram Fertilizers & Chemicals Ltd, Shriramnagar, Distt. Kota.	379.5 (Urea) 113.8 (caustic soda) 13.2 (bleaching powder) 61.2 (HCl) 61.2 (Cl)
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
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

(Contd.)

Table - 6 (Contd.)

(Contd.)

Table - 6 (Contd.)

Industry/plant	Capacity ('000 tpy)
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

Table - 6 (Concld.)

Industry/plant	Capacity ('000 tpy)
Tiger Plaster, Sardarshahar, Distt. Churu.	11
The Sardarshahar Plaster & Minerals, Sardarshahar, Distt. Churu.	19.4
Updesh Industries Ltd, Chak, Distt. Hanumangarh.	9
Copper Smelters	
HCL, KCC, Jhunjhunu.	31(Cu cathode) 182 (H_2SO_4)
Lead & Zinc Smelters	
HZL Zinc Smelter, Debari.	88 (Zn) 0.25 (Cd)
HZL Lead-zinc Smelter, Chanderiya.	85 (Pb) 525 (Zn) 0.468 (Cd) 168 tonnes (Ag)* 704 (H_2SO_4)*
HZL Lead -zinc smelter, Dariba	100 (Pb) 210 (Zn)

** Total for all smelters of HZL.*