

11 State Reviews

Analytical Summary

The value of mineral production in India in **2007-08** was at Rs.114,515 crores showing an increase of about 10% in comparison with the previous year. During **2007-08**, mineral production was reported from 33 entities comprising States, Union Territories and offshore areas of which the bulk of value of mineral production of about 97.4% was confined to fifteen states (including Offshore areas) only. Offshore areas continued to be in leading position, in terms of value of mineral production in the country and had the share of 17.62% in the national output. Among the State Andhra Pradesh with a share of 12.80% followed by Orissa (11.34%), Chhattisgarh (9.20%), Jharkhand (8.08%), Madhya Pradesh (7.22%), Gujarat (5.54%), Maharashtra (4.42%), Rajasthan (4.22%), Karnataka (3.93%), West Bengal (2.80%), Assam (2.77%), Uttar Pradesh (2.72%), Tamil Nadu (2.63%) and Goa (2.11%) were the top few that prominently contributed to the total value of mineral production. The remaining 18 States/Union Territories, having individual share of less than one percent, together accounted for 2.6% of the total value during the year under review.

Statewise analysis revealed that during **2007-08**, the value of mineral production in most of the important states was on higher side as compared to that in the previous year. The value of mineral production in Orissa and Goa increased by 29% and 24%, respectively. It was higher in Karnataka by 23%, Chhattisgarh by 17.5%, Madhya Pradesh by 16.7%, Maharashtra by 16.1%, Jharkhand by 11.5%, Andhra Pradesh by 8.8% and Rajasthan by 5.9% during the year under review. However, a decline was observed in the value of

mineral production in Sikkim (32.6%), Meghalaya (29.6%), West Bengal (11.1%) and Kerala and Uttar Pradesh (1.1% each) in **2007-08** as compared to that of the previous year.

The index of mineral production (base 1993-94=100) excluding atomic minerals stood at 172.42 in **2007-08** showing a nominal increase of about 3.3% over the previous year.

The number of mines which reported mineral production (excluding minor minerals, petroleum (crude), natural gas and atomic minerals) in India added to 2,854 in **2007-08** as against 3,005 in the previous year. Out of 2,854 reporting mines, 430 were located in Gujarat followed by 372 in Andhra Pradesh, 319 in Madhya Pradesh, 293 in Jharkhand, 227 in Orissa, 218 in Karnataka, 207 in Rajasthan, 156 in Tamil Nadu, 149 in Maharashtra, 142 in Chhattisgarh and 113 in West Bengal. These 11 states together accounted for 92% or 2,626 of the total number of mines in the country in **2007-08**. Except Assam, Goa and Meghalaya, the number of reporting mines was less nearly in all other states as compared to that of the previous year. Decline of reporting mines was observed in case of Andhra Pradesh (43) followed by Gujarat (27), Tamil Nadu (21), Madhya Pradesh (17), Karnataka (13), Rajasthan (10), Kerala and Orissa (6 each), Maharashtra (5), West Bengal (4) and Bihar, Chhattisgarh and Uttarakhand (2 each). In Himachal Pradesh, Jammu & Kashmir, Jharkhand and Uttar Pradesh, the number of mines remained unchanged in both the years (Tables - 1 to 4).

The all-India reserves and resources of various minerals as on 1.4.2005 as per UNFC system are given in Table - 5.

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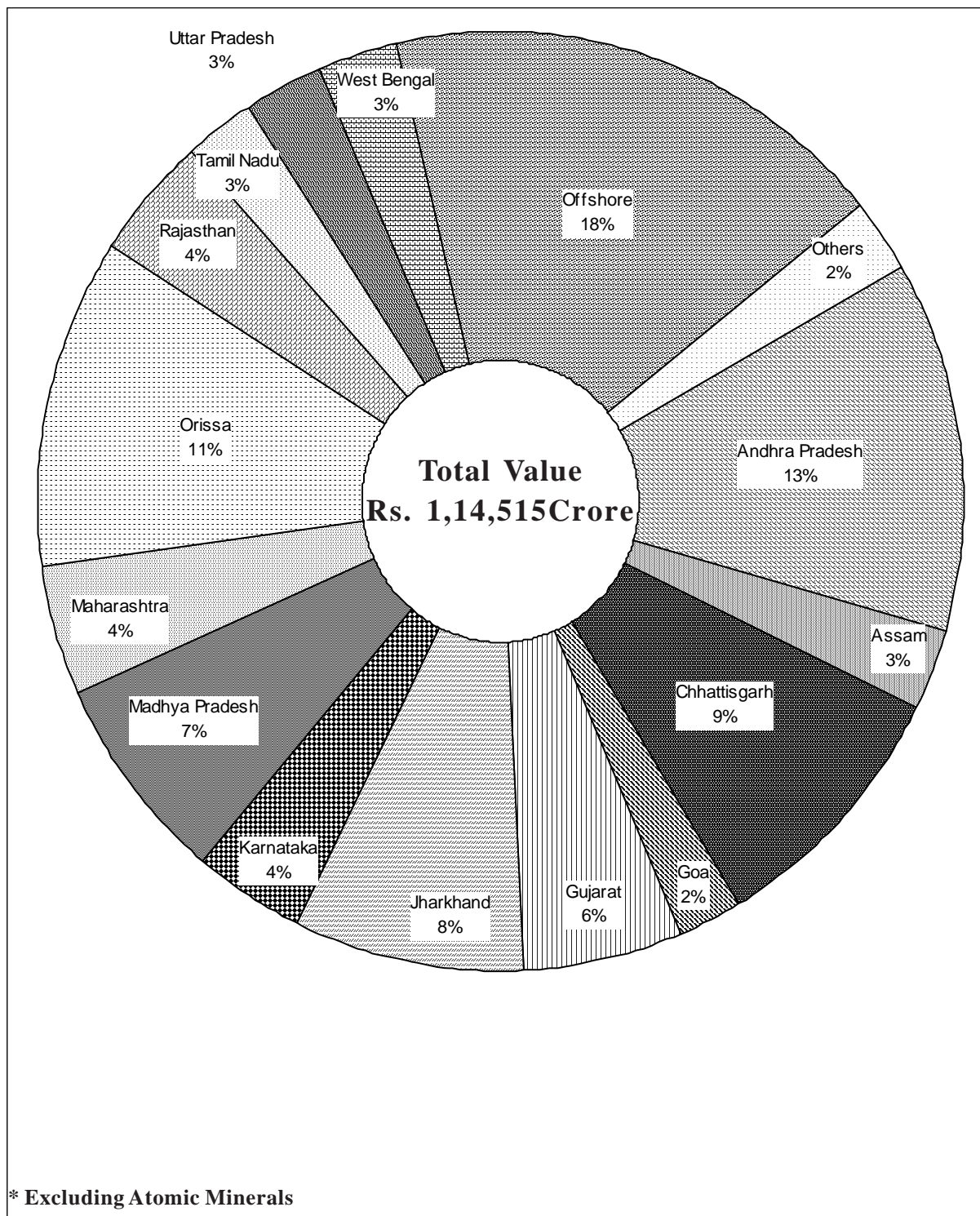
**Table – 1 : Value* of Mineral Production, 2005-06 to 2007-08
(By States & Union Territories)**

(In Rs. '000)

State/Union Territory/Region	2005-06	2006-07	2007-08(p)
India	907448097	1044904932	1145149911
Andhra Pradesh	83768585	134818542	146626643
Arunachal Pradesh	580803	603083	569663
Assam	31783281	31227608	31734365
Bihar	10973612	11011171	11006009
Chhattisgarh	75822512	89671849	105324176
Goa	11136033	19508109	24205167
Gujarat	58883930	63107967	63445599
Haryana	1487222	1487198	1487198
Himachal Pradesh	791442	934636	998073
Jammu & Kashmir	250029	318135	310941
Jharkhand	82932210	83018588	92579937
Karnataka	33341763	36451782	44949142
Kerala	6707709	7510473	7482336
Madhya Pradesh	65048095	70886544	82706073
Maharashtra	43282536	43625757	50652367
Manipur	2866	2866	2866
Meghalaya	7561660	8109712	5707095
Mizoram	755	755	755
Nagaland	1774	1774	1774
Orissa	81068406	100652131	129874551
Punjab	152301	190534	190534
Rajasthan	34814643	45614624	48293452
Sikkim	37258	13436	9050
Tamil Nadu	24156959	28534706	30065910
Tripura	869018	1003907	1030787
Uttarakhand	588996	636712	644852
Uttar Pradesh	34022854	31461841	31116623
West Bengal	33727658	36125034	32110605
Andaman & Nicobar Islands	141926	230751	230751
Chandigarh	653	3575	3575
Daman & Diu	233	587	587
Puducherry	5175	5175	5175
Offshore Region	183505200	198135370	201783280

* Excluding atomic minerals.

Share of States in the Value* of Mineral Production, 2007-08



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Table - 2 : Value* of Mineral Production, 2006-07 and 2007-08
(By States & Union Territories/Mineral Groups)

State/Union Territory/ Region	(In Rs. '000)									
	Total		Fuel minerals		Metallic minerals		Non-metallic minerals		Minor minerals	
	2006-07	2007-08 (p)	2006-07	2007-08 (p)	2006-07	2007-08 (p)	2006-07	2007-08 (p)	2006-07	2007-08 (p)
India	1044904932	1145149911	661582924	703363416	182858054	240381360	33514560	34455741	166949394	166949394
Andhra Pradesh	134818542	146626643	44017402	50973777	3662865	8204373	5243779	5553997	81894496	81894496
Arunachal Pradesh	603083	569663	601560	568140	-	-	-	-	1523	1523
Assam	31227608	31734365	30824370	31315648	-	-	60685	76164	342553	342553
Bihar	11011171	11006009	-	-	-	-	160897	155735	10850274	10850274
Chhattisgarh	89671849	105324176	53200988	58120363	33243788	43600773	2475032	2850999	752041	752041
Goa	19508109	24205167	-	-	19450859	24147917	-	-	57250	57250
Gujarat	63107967	63445599	51782518	52062861	1019514	2278084	4242796	3041515	6063139	6063139
Haryana	1487198	1487198	-	-	-	-	-	-	1487198	1487198
Himachal Pradesh	934636	998073	-	-	-	-	677467	740904	257169	257169
Jammu & Kashmir	318135	310941	12000	13804	-	-	74272	65274	231863	231863
Jharkhand	83018588	92579937	75765400	84356924	6113831	6980427	737909	841138	401448	401448
Karnataka	36451782	44949142	-	-	34681089	43184358	1510423	1504514	260270	260270
Kerala	7510473	7482336	-	-	-	-	1617277	1589140	5893196	5893196
Madhya Pradesh	70886544	82706073	59098280	68703260	3760916	6260323	3625474	3340416	4401874	4401874
Maharashtra	43625757	50652367	36281998	40013813	2833102	6241349	1337562	1224110	3173095	3173095
Manipur	2866	2866	-	-	-	-	-	-	2866	2866
Meghalaya	8109712	5707095	7638840	5292390	-	-	398797	342630	72075	72075
Mizoram	755	755	-	-	-	-	-	-	755	755
Nagaland	1774	1774	-	-	-	-	-	-	1774	1774
Orissa	100652131	129874551	33437920	42115599	65219347	85546976	1138097	1355209	856767	856767
Punjab	190534	190534	-	-	-	-	-	-	190534	190534
Rajasthan	45614624	48293452	1192200	1327799	12830247	13899917	6820373	8293932	24771804	24771804
Sikkim	13436	9050	-	-	4386	-	-	-	9050	9050
Tamil Nadu	28534706	30065910	24776560	26219926	38110	36663	3129350	3218635	590686	590686
Tripura	1003907	1030787	998400	1025280	-	-	-	-	5507	5507
Uttar Pradesh	31461841	31116623	9202181	8864062	-	-	49828	42729	22209832	22209832
Uttarakhand	636712	644852	-	-	-	-	161558	169698	475154	475154
West Bengal	36125034	32110605	34616937	30606490	-	-	52984	49002	1455113	1455113
Andaman & Nicobar Islands	230751	230751	-	-	-	-	-	-	230751	230751
Chandigarh	3575	3575	-	-	-	-	-	-	3575	3575
Daman & Diu	587	587	-	-	-	-	-	-	587	587
Puducherry	5175	5175	-	-	-	-	-	-	5175	5175
Offshore Region	198135370	201783280	198135370	201783280	-	-	-	-	-	-

* Excluding atomic minerals.

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**Table – 3 : Number of Reporting Mines*, 2005-06 to 2007-08
(By States)**

State	2005-06	2006-07	2007-08 (p)
India	2995	3005	2854
Andhra Pradesh	409	415	372
Assam	9	9	11
Bihar	9	8	6
Chhattisgarh	148	144	142
Goa	76	72	76
Gujarat	431	457	430
Himachal Pradesh	27	26	26
Haryana	1	0	0
Jammu & Kashmir	7	11	11
Jharkhand	297	293	293
Karnataka	236	231	218
Kerala	37	33	27
Meghalaya	5	8	10
Madhya Pradesh	333	336	319
Maharashtra	150	154	149
Orissa	235	233	227
Rajasthan	235	217	207
Sikkim	2	1	0
Tamil Nadu	173	177	156
Uttar Pradesh	23	26	26
Uttarakhand	36	37	35
West Bengal	116	117	113

* Excluding atomic minerals and minor minerals.

**Table – 4 : Index* of Mineral Production, 2005-06 to 2007-08
(By States)**

State/Region	2005-06	2006-07	2007-08 (p)
India	157.40	166.90	172.42
Andhra Pradesh	161.20	167.60	178.30
Arunachal Pradesh	212.00	220.20	207.99
Assam	96.40	95.70	95.37
Bihar	58.30	81.90	73.31
Chhattisgarh	186.40	203.10	219.01
Goa	168.60	201.60	205.45
Gujarat	125.10	125.40	125.33
Haryana	97.10	255.10	329.56
Himachal Pradesh	430.40	424.70	462.14
Jammu & Kashmir	127.40	139.70	135.00
Jharkhand	115.60	120.10	123.73
Karnataka	271.30	272.60	305.08
Kerala	273.60	244.10	229.48
Madhya Pradesh	166.80	179.10	199.47
Maharashtra	177.00	180.90	185.26
Meghalaya	222.10	240.10	266.89
Orissa	330.60	410.30	420.79
Punjab	47.70	48.60	45.17
Rajasthan	182.30	175.70	200.56
Sikkim	955.80	615.30	0.00
Tamil Nadu	184.40	194.80	196.20
Tripura	470.60	509.80	523.53
Uttarakhand	24.70	29.30	28.74
Uttar Pradesh	129.80	102.20	95.41
West Bengal	146.50	149.30	134.72
Offshore Region	149.80	157.80	160.74

* Excluding atomic minerals and minor minerals.

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Table – 5 : Reserves/Resources of Minerals as on 1.4.2005 : India

Mineral	Unit	Reserves				Remaining resources				Total resources (A+B)		
		Proved STD 111	Probable		Total Feasibility STD211	Pre-feasibility STD221	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)
			STD121	STD122								
Andalusite	'000 tonnes	-	-	-	-	-	-	18450	-	18450	18450	
Antimony	tonne	-	-	-	-	-	-	10588	-	10588	10588	
Ore	tonne	-	-	-	-	-	-	174	-	174	174	
Metal	tonne	-	-	-	-	-	-	174	-	174	174	
Apatite	tonne	6125946	-	19629	6145575	-	2281521	11481250	5938716	1017646	20719133	
Asbestos	tonne	2973825	2861727	6040544	-	321847	90687	2489218	10528926	57800	15695817	
Ball clay	tonne	14786626	3062777	14680390	32529793	112700	1610220	1398102	-	46761403	79291196	
Barytes	tonne	31639934	359813	2313033	34312780	-	4347714	26482273	244159	708880	8107541	
Bauxite	'000 tonnes	538945	225424	135015	899384	335	90224	240179	579561	394022	1085576	
Bentonite	tonne	-	11415982	13644526	25060508	-	3067	65200	26519818	225744237	227450576	
Borax	tonne	-	-	-	-	-	-	-	-	-	74204	
Calcite	tonne	3218256	178420	3345354	6742030	166900	12346	1106370	9097635	1241559	4109651	
China clay	'000 tonnes	101520	13142	107459	222121	3214	29460	34819	287435	408009	1588599	
Chromite	'000 tonnes	30892	10217	25019	66128	-	1191	2286	39673	30701	47235	
Cobalt ore	million tonnes	-	-	-	-	-	-	-	30.63	2	2.78	
Copper												
Ore	'000 tonnes	135461	48178	185854	369493	3375	2230	13995	112019	158678	734637	
Metal	'000 tonnes	1643.93	494.39	2245.65	4383.97	3.37	11.82	60.43	1052.47	1396.27	4509.39	
Corundum	tonne	317	-	288	605	-	756	915	13	49	81457	
Diamond	carat	605577	-	600000	1205577	-	1240	-	298638	1523077	1549359	
Diaspore	tonne	1662218	531012	931802	3125032	-	-	-	1238	566	2092228	
Diatomite	'000 tonnes	634	-	-	634	-	-	-	-	-	2251	
Dolomite	'000 tonnes	407794	187077	390286	985156	11193	327152	152446	191266	392699	5356870	
Dumite	'000 tonnes	12714	4476	110884	128074	-	557	1157	23909	384	13848	
Felspar	tonne	19220596	4288467	14540773	38049836	57004	1008010	2800094	22353339	8381136	38250244	
Fireclay	'000 tonnes	26897	14456	17948	59301	19	9447	5595	49149	47758	532436	
Fluorite	tonne	8585124	165222	463485	9213831	65889	450168	6224178	1713833	495061	1857527	
Fuller's earth	tonne	-	-	58200	58200	-	-	-	-	912340	255681539	
Garnet	tonne	6719626	9700	14246279	20975605	-	-	-	119831	10233123	26326391	
Gold												
Ore(primary)	tonne	15554089	1075868	2623994	19253951	-	-	1724132	27062651	83529855	118635315	
Metal	tonne	66.92	3.8	14.4	85.12	-	-	6.74	62.08	118.4	52.74	
(primary)	tonne	-	-	-	-	-	-	-	-	-	165.73	
Ore (placer)	tonne	-	-	-	-	-	-	-	-	-	26121000	
Metal	tonne	-	-	-	-	-	-	-	-	-	23569000	
(placer)	tonne	-	-	-	-	-	-	-	-	2.29	3.57	

(Contd.)

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Table - 5 (Contd.)

Mineral	Unit	Reserves					Remaining resources					Total resources (A+B)		
		Proved	Probable	Total	Feasibility	Pre-feasibility	Measured	Indicated	Inferred	Reconnaissance	Total			
		STD 111	STD121	STD122	STD211	STD221	STD331	STD332	STD333	STD334	(B)			
Granite	'000 cu m	23010	1075059	31955	1130024	-	44220	513249	841284	2064405	32793579	39240	36295977	37426001
Graphite	'000 tonnes	5164	1022	4565	10750	12	78	930	51	5957	16507	134490	158025	168775
Gypsum	'000 tonnes	40803	1276	26579	68658	285	10418	7756	9033	710681	430034	10	1168218	1236876
Iron ore														
Hematite	'000 tonnes	4945329	995556	1063283	7004168	178449	101713	267013	491631	1031763	4021763	1533887	7626219	14630387
Magnetite	'000 tonnes	14339	38767	5397	58503	173273	9120	25460	1624796	1878483	6280882	568964	10560978	10619481
Kyanite	tonne	921762	190216	262213	1374191	-	4317	1749782	605209	3586402	95293321	-	101239031	102613222
Lead & zinc														
Ore	'000 tonnes	62860	6574	56320	125754	3375	-	13572	12193	161985	202361	3340	396826	522580
Lead metal	'000 tonnes	1262.98	130.21	1197.36	2590.55	85.39	-	306.35	244.37	1601.86	2378.73	-	4616.70	7207.25
Zinc metal	'000 tonnes	5503.16	282.11	5307.62	11092.89	269.32	-	631.45	535.06	5271.77	6357.54	101.65	13166.79	24259.68
Lead & zinc metals	'000 tonnes	-	-	-	-	-	-	-	-	-	118.45	-	118.45	118.45
Limestone	million tonnes	7492	1978	3245	12715	38	6310	8735	7883	20726	115473	3466	162630	175345
Magnetite	'000 tonnes	20863	10197	45073	76133	-	1363	15	59010	59752	141564	45	261749	337882
Marble	'000 tonnes	-	2507	2193	4700	-	27805	236316	-	17129	1506688	-	1787938	1792638
Mica	kg	1270873	9668	67289302	68569843	-	-	1418	109494690	43264890	170326124	2198454	325285576	393855419
Manganese ore	'000 tonnes	76844	16683	44624	138151	7966	29541	11971	4175	24033	160183	2549	240418	378569
Molybdenum														
Ore	tonne	-	1500000	-	1500000	-	-	425180	36000	569304	15266248	1490000	17786732	19286732
Contained MoS ₂	tonne	-	1050	-	1050	-	-	128	83	287	10049	1043	11590	12640
Nickel ore	'000 tonnes	-	-	-	-	-	20840	20620	30700	53060	63490	-	188710	188710
Ochre	tonne	25747479	3926955	18193423	47867858	856596	1433728	15329242	669393	3085333	23449894	749250	45573436	93441294
Perlite	'000 tonnes	188	-	316	504	-	-	334	-	-	-	1051	1385	1889
Phosphorite/Rock phosphate	tonne	33090127	3892392	15740973	52723492	23798683	28974156	19118001	3036903	4428773	173228568	-	252585084	305308576
Platinum group of metals	tonne	-	-	-	-	-	-	7.70	-	-	6.50	-	14.20	14.20
Potash	million tonnes	-	-	-	-	-	-	-	-	18142	3651	22	21815	21815
Pyrite	'000 tonnes	27129	-	29597	56726	-	-	3000	9590	77729	1527356	-	1617675	1674401
Pyrophyllite	tonne	9584547	3653843	6251227	19489617	47400	118304	3449665	867742	1638452	6870521	1213236	14205319	33694936
Quartz/Quartzite														
Silica sand	'000 tonnes	271614	190580	309314	771508	2618	134965	152072	55566	251843	1869517	123	2466703	3238211
Quartzite	'000 tonnes	26419	26051	46074	98544	801	90774	96281	91089	111326	656142	-	1046413	1144957
Rock salt	'000 tonnes	8470	-	5060	13530	-	-	-	-	-	-	-	-	13530
Ruby	kg	143.1	-	1782	1925.1	-	-	1683.01	-	-	1662.63	-	3345.64	5270.74
Sapphire	kg	-	-	-	-	-	-	-	-	-	450	-	450	450

(Contd.)

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Table - 5 (Concl.d.)

Mineral	Unit	Reserves					Remaining resources					Total resources (A+B)		
		Proved STD 111	Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)
			STD121	STD122			STD221	STD222						
Sillimanite	tonne	457305	-	10966689	11423994	-	4000	20097619	5358481	17630300	15975875	3849600	62915875	74339869
Silver														
Ore	tonne	55752053	1707043	58453642	115912738	3375000	-	11864000	1900000	34370000	77211729	-	128720729	244633467
Metal	tonne	2283.19	133.81	3641.33	6058.33	270	-	878.18	161.6	958.24	1886.27	-	4154.29	10212.62
Sulphur	'000 tonnes	-	-	-	-	-	-	-	-	-	210	-	210	210
Talc/steatite/ soapstone	'000 tonnes	65012	8574	41940	115526	6183	47823	20524	143	6705	115229	202	196810	312335
Tin														
Ore	tonne	200828	-	48669	249497	22580000	2518093	31330101	168326	595914	29110378	-	86302812	86552310
Metal	tonne	107.68	-	26.4	134.08	32187.8	892	13240.7	662.49	213.6	53906.43	-	101103.02	101237.1
Titanium minerals														
*Ilmenite	tonne	11727540	602635	8851412	21181587	-	151888	-	1090326	37281942	269835940	-	308360096	329541683
*Rutile	tonne	826121	760500	418933	2005554	-	-	-	4460	3212205	8584030	-	11800695	13806249
Leucoxene	tonne	643772	-	25625	669397	-	-	-	1994	-	341949	-	343943	1013340
Anatase	tonne	-	-	-	-	-	-	3345000	-	-	-	-	3345000	3345000
Titaniferous magnetite	tonne	423500	-	868500	1292000	-	-	-	950000	3630000	34810094	-	39390094	40682094
Tungsten														
Ore	tonne	-	-	-	-	2230000	-	173063	19784073	23435954	25183128	16581246	87387464	87387464
Contained WO ₃	tonne	-	-	-	-	3568	-	450	10056	20180.92	103273.15	4566.28	142094.35	142094.35
Vanadium														
Ore	tonne	490663	1720000	4108000	6318663	-	-	-	1382875	263000	16883350	-	18529225	24847888
Metal	tonne	1913.58	2835	6021.2	10769.78	-	-	-	7162.2	552.3	46905.99	-	54620.49	65390.27
Vermiculite	tonne	1556664	86930	120036	1763630	-	2773	-	765	21153	649940	-	674631	2438261
Wollastonite	tonne	7423894	-	1109417	8533311	372866	-	3836224	-	3325042	4174180	-	11708312	20241623
*Zircon	tonne	2484687	852642	368583	3705912	-	-	-	-	-	569748	-	569748	4275660

Figures rounded off.

* Please refer the respective Mineral Reviews for resources as per Department of Atomic Energy.

The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2007 in India are 725.38 million tonnes and 1,054.58 billion cu m, respectively.

ANDHRA PRADESH

Mineral Resources

Andhra Pradesh is the leading producer of chrysotile asbestos, barytes, mica, felspar, vermiculite, quartz, laterite, silica sand, dolomite and limestone. The State accounts for 94% barytes, 63% ball clay, 61% corundum, 40% diamond, 39% calcite, 28% mica, 26% garnet, 23% ilmenite, 20% limestone and 15% dolomite resources of the country. The State is endowed with the internationally known black, pink, blue and multicoloured varieties of granites. Krishna-Godavari basin areas of the State have emerged as new promising areas for hydrocarbons especially natural gas.

Important minerals occurring in the State are **apatite** in Visakhapatnam district; **asbestos** in Cuddapah district; **ball clay** in West Godavari district; **barytes** in Anantapur, Cuddapah, Khammam, Krishna, Kurnool, Nellore and Prakasam districts; **calcite** in Anantapur, Cuddapah, Kurnool and Visakhapatnam districts; **china clay** in Adilabad, Anantapur, Chittoor, Cuddapah, East Godavari, West Godavari, Guntur, Kurnool, Mahaboobnagar, Nalgonda, Nellore, Rangareddy, Visakhapatnam and Warangal districts; **coal** in Adilabad, East and West Godavari, Karimnagar, Khammam and Warangal districts; **corundum** in Anantapur and Khammam districts; **dolomite** in Anantapur, Khammam, Kurnool and Warangal districts; **felspar** in Anantapur, Cuddapah, West Godavari, Hyderabad, Khammam, Mahaboobnagar, Medak, Nellore, Rangareddy and Vizianagram districts; **fireclay** in Adilabad, Chittoor, Cuddapah, East Godavari, West Godavari, Kurnool, Nalgonda and Srikakulam districts; **garnet** in East Godavari, Khammam and Nellore districts; **granite** in Anantapur, Chittoor, Cuddapah, Guntur, Karimnagar, Khammam, Krishna, Mahaboobnagar, Medak, Nalgonda, Nellore, Prakasam, Rangareddy, Srikakulam, Vizianagram and Warangal districts; **iron ore (hematite)** in Anantapur, Cuddapah, Guntur, Khammam, Krishna, Kurnool and Nellore districts; **iron ore (magnetite)** in Adilabad, Prakasam and Warangal districts; **lead-zinc** in Cuddapah, Guntur and Prakasam districts; **limestone** in Adilabad, Anantapur, Cuddapah, East Godavari, West Godavari, Guntur, Hyderabad, Karimnagar, Krishna, Kurnool, Mahaboobnagar, Nalgonda, Nellore, Rangareddy, Srikakulam, Visakhapatnam and Vizianagram districts; **manganese ore** in Adilabad, Srikakulam and Vizianagram districts; **mica** in Khammam

and Nellore districts; **ochre** in Cuddapah, West Godavari, Guntur, Kurnool and Visakhapatnam districts; **pyrophyllite** in Anantapur district; **quartz/silica sand** in Anantapur, Chittoor, Cuddapah, West Godavari, Guntur, Hyderabad, Khammam, Krishna, Kurnool, Mahaboobnagar, Medak, Nalgonda, Nellore, Prakasam, Rangareddy, Srikakulam, Visakhapatnam, Vizianagram and Warangal districts; **quartzite** in Kurnool, Srikakulam, Visakhapatnam and Vizianagram districts; **talc/steatite/soapstone** in Anantapur, Chittoor, Cuddapah, Khammam and Kurnool districts and **vermiculite** in Nellore and Visakhapatnam districts. **Petroleum & natural gas** deposits of importance are located in the onshore and offshore areas of Krishna-Godavari basin of the State.

Other minerals that occur in the State are **bauxite** in East Godavari and Visakhapatnam districts; **chromite** in Khammam and Krishna districts; **copper** in Guntur, Khammam, Kurnool and Prakasam districts; **diamond** in Anantapur, Krishna and Kurnool districts; **fuller's earth** in Medak and Rangareddy districts; **gold** in Anantapur, Chittoor and Kurnool districts; **graphite** in East Godavari, West Godavari, Khammam, Srikakulam, Visakhapatnam and Vizianagram districts; **gypsum** in Guntur, Nellore and Prakasam districts; **kyanite** in Khammam, Nellore and Prakasam districts; **magnesite** in Cuddapah district; **marble** in Khammam district; **pyrite** in Kurnool district; **sillimanite** in West Godavari district; **silver** in Guntur district; **titanium minerals** in East Godavari, Krishna, Nellore, Srikakulam and Visakhapatnam districts; and **tungsten** in East Godavari district (Tables - 6(A) and 6(B)).

Exploration & Development

The details of exploration activities conducted by various agencies for coal and other minerals during 2006-07 and 2007-08 are furnished in Table - 7(A).

ONGC continued its seismic survey and drilling for exploration of petroleum & natural gas in Krishna-Godavari basin. In 2006-07, two new gas prospects were discovered in East Godavari district and one prospect in West Godavari district. In 2007-08, one oil and three gas prospects were discovered in East Godavari district. Details of exploration activities are furnished in Table - 7(B).

Table – 6(A) : Reserves/Resources of Minerals as on 1.4.2005 : Andhra Pradesh

Mineral	Unit	Reserves										Total resources (A+B)		
		Proved					Remaining resources							
		Proved STD 111	Probable STD121	Probable STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221	Pre-feasibility STD222	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)
Apatite	tonne	-	-	19629	19629	-	-	-	-	-	337541	-	337541	357170
Asbestos	tonne	2529	1336	15656	19521	-	1781	1170	-	-	27085	-	30036	49557
Ball clay	tonne	6677726	2806267	10746533	20230526	-	-	-	-	2279330	27647424	-	29926754	50157280
Barytes	tonne	31438494	347165	2203099	33988758	-	3980846	25083052	-	-	6561343	-	35907692	69896450
Bauxite	'000 tonnes	199	5	48	251	-	-	2260	-	-	288176	-	615016	615267
Calcite	tonne	5927	-	102345	108272	-	-	-	-	5200	121662	-	8689062	8797334
China clay	'000 tonnes	4490	2578	4841	11908	-	-	-	-	179	61582	-	61767	73675
Chromite	'000 tonnes	-	-	-	-	-	-	-	-	15	172	-	187	187
Copper														
Ore	'000 tonnes	686	338	433	1457	-	-	395	-	5396	1000	-	6791	8248
Metal	'000 tonnes	6.88	4.33	5.84	17.05	-	-	7.54	-	89.91	8.32	-	105.77	122.82
Corundum	tonne	7	-	-	7	-	-	-	-	-	51088	-	51088	51095
Diamond	carat	-	-	-	-	-	1240	-	-	298638	1523077	0	1822955	1822955
Dolomite	'000 tonnes	78933	8077	36411	123422	-	-	-	-	130654	892349	-	1023003	1146425
Felspar	tonne	2115904	281751	2456752	4854407	-	-	-	-	3800000	2789906	-	6589906	11444314
Fireclay	'000 tonnes	1382	935	1444	3761	-	-	-	-	56	17928	-	18742	22503
Fuller's earth	tonne	-	-	-	-	-	-	-	-	-	25523983	-	25523983	25523983
Garnet	tonne	36000	600	-	36600	-	-	-	-	8800000	5934423	-	14734423	14771023
Gold														
Ore (primary)	tonne	655133	-	889515	1544648	-	-	-	-	661000	1692699	-	10553699	12098347
Metal(primary)	tonne	2.45	-	3.57	6.02	-	-	-	-	17.28	7.59	-	25.56	31.58
Granite														
(Dim. stone)	'000 cu m	-	-	-	-	-	-	-	-	-	2405890	-	2405890	2405890
Graphite	tonne	-	-	1135	1135	-	-	-	-	124759	301306	-	426064	427199
Gypsum	'000 tonnes	-	-	-	-	-	-	-	-	-	404	-	404	404
Iron ore														
(hematite)	'000 tonnes	24961	7377	7258	39596	205	-	-	-	377	1054	-	123443	163038
Iron ore														
(magnetite)	'000 tonnes	-	-	-	-	43034	-	-	-	13800	1266666	140027	14	1463541
Kyanite	tonne	-	-	399	399	-	-	-	-	-	80353829	-	80353829	80354228
Lead-zinc														
Ore	'000 tonnes	686	-	105	791	-	-	-	-	1000	4159	670	-	5829
Lead metal	'000 tonnes	25.90	-	3.96	29.86	-	-	-	-	28.70	119.53	21.74	-	169.97

(Contd.)

Table - 6(A) (concl.d.)

Mineral	Unit	Reserves						Remaining resources						Total resources (A+B)										
		Proved		Probable		Total (A)		Feasibility		Pre-feasibility		Measured			Indicated		Inferred		Reconnaissance		Total (B)			
		STD 111		STD121	STD122	STD211	STD221	STD222	STD331	STD332	STD333	STD334	STD334		STD334	STD334	STD334	STD334	STD334	STD334	STD334	STD334	STD334	
Zinc metal	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	12.40	43.57	7.19	-	-	63.16	63.16	-	-	63.16	63.16	
Limestone	'000 tonnes	2065743	188150	1126885	3380779	12689	44586	725250	113890	272610	27603548	3025184	31797756	31797756	31797756	31797756	31797756	31797756	31797756	31797756	31797756	31797756	35178535	
Magnesite	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	80	-	-	80	80	-	-	80	80	
Manganese ore	'000 tonnes	2457	188	1204	3849	-	-	42	322	3972	7398	-	11734	11734	11734	11734	11734	11734	11734	11734	11734	11734	15583	
Marble	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	3	-	-	3	3	-	-	3	3	
Mica	kg	-	-	-	-	-	-	-	-	-	111315850	-	111315850	111315850	111315850	111315850	111315850	111315850	111315850	111315850	111315850	111315850	111315850	
Ochre	tonne	3211035	926815	4174784	8312634	-	-	-	5000	-	2641348	-	2646348	2646348	2646348	2646348	2646348	2646348	2646348	2646348	2646348	2646348	10958982	
Pyrite	'000 tonnes	-	-	-	-	-	-	-	-	-	880	-	880	880	880	880	880	880	880	880	880	880	880	880
Pyrophyllite	tonne	11220	-	9720	20940	-	-	-	-	-	15880	-	15880	15880	15880	15880	15880	15880	15880	15880	15880	15880	36820	
Quartz-																								
silica sand	'000 tonnes	43626	7717	33112	84455	22	959	5114	5924	1502	55840	100	69461	69461	69461	69461	69461	69461	69461	69461	69461	69461	153916	
Quartzite	'000 tonnes	3300	3496	7187	13982	-	-	2	-	-	4586	-	4588	4588	4588	4588	4588	4588	4588	4588	4588	4588	18570	
Sillimanite	tonne	-	-	-	-	-	-	-	-	-	7430300	-	8776500	8776500	8776500	8776500	8776500	8776500	8776500	8776500	8776500	8776500	8776500	
Silver																								
Ore	tonne	686250	-	105000	791250	-	-	-	-	-	90000	-	90000	90000	90000	90000	90000	90000	90000	90000	90000	90000	881250	
Metal	tonne	5.19	-	0.79	5.98	-	-	-	-	-	1.08	-	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	1.08	7.06	
Talc-steatite-																								
soapstone	'000 tonnes	3134	131	2082	5346	-	-	-	13	143	3615	-	3771	3771	3771	3771	3771	3771	3771	3771	3771	3771	9117	
Titanium minerals																								
*Ilmenite	tonne	-	-	-	-	-	-	-	-	-	76683704	-	76683704	76683704	76683704	76683704	76683704	76683704	76683704	76683704	76683704	76683704	76683704	
*Rutile	tonne	-	-	-	-	-	-	-	-	-	18805	-	18805	18805	18805	18805	18805	18805	18805	18805	18805	18805	18805	
Tungsten																								
Ore	tonne	-	-	-	-	-	-	-	3640000	4700800	5952500	509000	14802300	14802300	14802300	14802300	14802300	14802300	14802300	14802300	14802300	14802300	14802300	
Contained																								
WO ₃	tonne	-	-	-	-	-	-	-	5096.00	6574.64	8273.65	318.28	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	20262.57	
Vermiculite	tonne	1508	3160	5646	10314	-	-	-	765	6101	93304	-	100170	100170	100170	100170	100170	100170	100170	100170	100170	100170	110484	

Figures rounded off.

* Please refer the respective Mineral Reviews for resources of ilmenite, rutile, leucosene and zircon as per Department of Atomic Energy.

The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2007 in the State are 4.4 million tonnes and 40.92 billion cu m, respectively.

STATE REVIEWS

Table – 6(B) : Reserves of Coal as on 1.4.2007 : Andhra Pradesh

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total/Godavari Valley	8791.13	6265.58	2657.75	17714.46

*Source: Coal Directory of India, 2006-07.***Table – 7(A) : Details of Exploration Activities in Andhra Pradesh, 2006-07 and 2007-08**

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
2006-07							
GSI							
Barytes							
Cuddapah	Mangampet area	-	-	-	-	-	All the four test boreholes drilled intersected carbonaceous tuff, host rock for baryte. One borehole intersected thin baryte bands along with carbonaceous tuff. The drilling has not indicated any promising results.
Coal							
Godavari Valley Coalfield							
(Khammam dist.)	Penaballi block	-	-	-	-	-	About 6.9 to 20.05 m thick seam zone of lower Kamthi formation was intersected at depth between 355.2 m and 495.1 m. Queen seam (1.85 m thick) of Barakar formation was recorded between depths of 528.7 m and 538.8 m.
-do-	Gattugudem block	-	-	-	-	-	Two coal zones of lower Kamthi formation and one seam zone of Barakar formation was intersected within 600 m depth.
Diamond							
Anantapur	Timasamudram-Mauktikapuram block	-	-	-	-	-	The geological and geophysical surveys led to the discovery of two new kimberlite bodies.
Anantapur and Kurnool	Hossur-Tuggali block Kurnool dist. and Gooty block in Anantapur dist.	-	-	-	-	-	Search for kimberlite was carried out through reconnaissance mapping and sampling. Analysis of stream sediment samples did not yield any kimberlite specific indicator minerals.
Krishna and Khammam	Along Munneru river basin	-	-	-	-	-	Search for primary source rocks for placer diamonds in terrace gravels was carried out by mapping and sampling.

(Contd.)

STATE REVIEWS

Table - 7(A) (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Mahaboobnagar	Pebberu block	-	-	-	-	-	Two kimberlite bodies were discovered close to village Chagapuram. Analysis of the samples yielded kimberlite specific minerals.
Kurnool and Mahaboobnagar	Mantralayam kimberlite pipe occurring on the North bank of Tungbhadra river	-	-	-	-	-	Pitting of about 100 cu m was carried out in 5 pits and about 76 tonnes of bulk samples were collected for processing. Processing of 38 tonnes of kimberlite pipes did not yield diamond.
Gold Cuddapah	Southern part of the Velligallu greenstone belt	-	-	-	-	-	Detailed mapping, pitting, trenching and sampling were conducted. A zone of rich sulphide mineralisation was noticed for about 150 km strike length. Analytical results showed gold concentration ranging from 0.02 to 0.21 g/t.
Kurnool	Aspari area	-	-	-	-	106	Large-scale mapping, pitting, trenching and sampling were conducted. Analytical results of 106 soil and pit samples indicated gold value ranging from 0.03 to 0.45 g/t.
Nellore	S-W part of the Nellore schist belt	-	-	-	-	-	Large-scale mapping, pitting, trenching and sampling were conducted. Surface indications for mineralisation were noticed. Analytical results showed anomalous gold values ranging from 0.03 to 0.07 g/t.
Molybdenum Prakasam	Kanigiri area	-	-	-	-	-	Sporadic mineralisation of molybdenum was recorded along a N-S trending shear zone in Kanigiri area near Devangnagar. Bedrock and soil samples were collected for analysis.
DMG Dolomite Khammam	N/v Bonakal, Chintakani, etc.	-	-	-	-	-	Reconnaissance survey was carried out. Investigation is under progress.
Granite East Godavari	N/v Chopparipalem, Jaderu, Nellipudi and Thungamadugula	-	-	-	-	-	Reconnaissance survey was carried out. Investigation is under progress.

(Contd.)

STATE REVIEWS

Table - 7(A) (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Medak	N/v Kukunur, Jukkal, Gadipeddapur, etc.	-	-	-	-	-	Reconnaissance survey was carried out. Investigation is under progress.
Visakhapatnam	N/v Madigunta, Nalanki, etc.	-	-	-	-	-	Reconnaissance survey was carried out. Investigation is under progress.
Laterite							
East Godavari	N/v Pandirimamidikot, Kodavalilanka and Vetukuru	-	-	-	-	-	Reconnaissance survey was carried out. Investigation is under progress.
MECL							
Coal							
Godavari Valley Coalfield	Chintalpudi Gaveridevipetta Palaoncha Raghavapuram Ramnagaram	-	-	-	4896.0 5193.0 2314.2 4151.2 1658.0	-	Promotional drilling was carried out on behalf of Ministry of Coal.
SCCL							
Godavari Valley Coalfield	8 blocks	-	-	-	87469	-	393.94 million tonnes of coal reserves proved.
NMDC							
Diamond							
Anantapur	Anumpalli PL area	-	-	-	-	-	About 347.56 tonnes of kimberlite bulk samples were collected and processed. About 26 nos. of diamonds weighing 3.15 carats have been recovered.
Anantapur	Venkatampalli PL area	-	-	18	644	-	About 31.27 tonnes of Large Diameter non-core Drilling (LDD) samples were collected and processed. 14 nos. of diamonds weighing 1.55 carats have been recovered.
-do-	Chigicherla PL area	-	-	65	2080	-	About 132.29 tonnes of LDD samples were collected and sent for processing.
-do-	8 PL areas in Kalyandurg area	-	-	-	-	-	All the EPMA data (652 mineral grains) was studied. Anomaly maps were generated.
2007-08							
GSI							
Coal							
Godavari Valley Coalfield (Khammam and West Godavari dist.)	Allipalli block	-	-	-	-	-	About 0.5 to 0.85 m thick seam zone of lower Kamthi formation was intersected at depths between 71.75 m and 304.9 m.

(Contd.)

STATE REVIEWS

Table - 74(A) (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Diamond							
Anantapur	Peruru block	-	-	-	-	-	One stream sediment sample from Gangampalli area yielded a few grains of suspected kimberlite indicator minerals. Detailed sampling in the upstream area also yielded indicator minerals.
Kurnool and Mahaboobnagar	Rajoli block	-	-	-	-	-	Stream sediment samples did not yield any kimberlite specific minerals.
Mahaboobnagar	Chagapuram sub block	-	-	3	-	-	Two new kimberlite bodies were discovered. Boreholes were drilled to test the depth extension and to collect core samples.
-do-	Chagapuram kimberlite pipe	-	-	-	-	-	Bulk sampling and processing were carried out to assess the diamondiferous nature of the kimberlite pipe.
Gold							
Cuddapah	Shivapuram and Guttamidapalle blocks	-	-	-	-	-	Analytical results indicated gold values ranging from 32 ppb tonnes to 0.44 g/t.
Nellore	S-W part of the Nellore schist belt	-	-	-	-	446	Analytical results of bed rock samples showed anomolous gold values ranging from 30 ppb to 0.21 g/t.
Warangal	Ghanpur schist belt	-	-	-	-	205	Stream sediment samples indicated gold values ranging from 25 to 88 ppb.
Molybdenum							
Prakasam	Kanigiri area	-	-	-	-	-	Analysis of sample showed Mo at <5 to 105.4 ppm.
MECL							
Coal							
Godavari Valley Coalfield	Chintalpudi	-	-	-	2352.5	-	Promotional drilling on behalf of Ministry of Coal was conducted.
	Gaveridevipetta				361.6		
	Palaoncha				68.4		
	Somavaram Jangareddygudam				7658.0 6713.1		
SCCL							
Godavari Valley Coalfield	8 blocks	-	-	-	79380	-	187.20 million tonnes of coal reserves proved.
NMDC							
Diamond							
Anantapur	Anumpalli PL area	-	-	-	-	-	About 4 nos. of diamond weighing 0.27 carats have been recovered. Mineable kimberlite reserves up to 60 m depth is estimated at 3.51 million tonnes.

(Contd.)

STATE REVIEWS

Table - 7(A) (Concl.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
-do-	Venkatampalli PL area	-	-	-	-	-	Kimberlite reserves up to 90 m depth is estimated at 0.55 million tonnes with diamond incidence of 7.89 carats per hundred tonnes.
-do-	Chigicherla PL area	-	-	-	-	-	Four nos. of diamond weighing 1.72 carats have been recovered. Kimberlite reserves up to 90 m depth is estimated at 5.57 million tonnes.
-do-	8 PL areas in Kalyandurg area	-	-	-	-	-	Anomaly maps were generated for 10.57 line km of ground magnetic data in all the 8 PL areas.

Table – 7(B) : Exploration for Petroleum & Natural Gas in Andhra Pradesh by ONGC
2006-07 and 2007-08

Year	Seismic Survey		Drilling			
			Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07	554.3	725.91	12	25955	15	29501
2007-08	-	702.62	9	31936	12	29157

Production

The value of mineral production in Andhra Pradesh at Rs.14,663 crore in 2007-08 was higher by about 8.8% as compared to that in the previous year. Almost all important minerals are produced in Andhra Pradesh. The principal minerals produced in the state were coal, iron ore, natural gas (utilised), limestone and petroleum (crude), which together accounted for 43.2% of total value of mineral production in the state during 2007-08. Coal alone contributed 30.3% of the total value of mineral production in the state (Table-8).

Andhra Pradesh claims the first position among the states in the country with a contribution of 12.8% to the total value of the mineral production. The share of Andhra Pradesh in the production of principal minerals in terms of quantity was mica (crude) 99.8%, barytes 99.2%, felspar 88.3%, vermiculite 84.4%, silica sand 55.5%, laterite 48.3%, quartz 33.3%, dolomite 25.1%, limestone 19.6% and clay (others) (18.8%) in the country.

Among the important minerals produced in the state, output of iron ore in terms of quantity increased by 72.6% and that of limestone by 9.3%, coal by 7.7%, petroleum by 10.7%, natural gas (utilised) by 2.6% and dolomite by 19.5%. The production of manganese ore and silica sand increased to more than double. Decline in production was observed in kaolin by 80.4%, clay (others) 38.4%, barytes 36.3%, asbestos 33.1%, fireclay 26.5%, quartz 13.1%, sand (others) 25.3%, ball clay 8.7% and laterite 6.1%. The reason for fall in production of asbestos, ball clay and barytes was non-availability of labour and lack of demand.

The production value of minor minerals was estimated at Rs. 8,189 crore for the year 2007-08. The number of reporting mines in the state were 372 in 2007-08 as compared to 415 in the previous year. The index of mineral production in Andhra Pradesh (base 1993-94=100) was 178.30 in 2007-08 as against 167.60 in the previous year.

STATE REVIEWS

**Table – 8 : Mineral Production in Andhra Pradesh, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		409	83768585	415	134818542	372	146626643			
Coal	'000 tonnes	57	36138	36801494	62	37707	37727362	52*	40604	44405347
Natural gas (utilised)	m cu m	-	1663	4989000	-	1527	4886400	-	1567	5014400
Petroleum (crude)	'000 tonnes	-	216	1203120	-	252	1403640	-	279	1554030
Iron ore	'000 tonnes	7	4148	2842076	14	4985	3599272	17	8602	8068064
Manganese ore	tonne	23	84447	78361	23	64352	63593	28	141803	136309
Apatite	tonne	1	3899	8149	1	3720	8307	1	3853	7832
Asbestos	tonne	3	635	18968	3	390	14921	3	261	9764
Ball clay	tonne	13	196391	18148	13	251320	63731	11	229463	70909
Barytes	tonne	11	1149627	438062	7	1670506	936965	6	1063437	544943
Clay (others)	tonne	9	186483	16030	10	245017	34612	9	150941	16501
Dolomite	tonne	11	1071940	230038	16	1076354	191582	14	1285891	254797
Felspar	tonne	12	334864	58218	9	387300	73380	9	362869	69635
Fireclay	tonne	10	51900	6570	10	42678	8209	7	31356	8449
Garnet (abrasive)	tonne	2	14100	1066	1	1919	144	1	1950	146
Kaolin	tonne	9	29628	2042	12	109852	8850	8	21541	2611
Laterite	tonne	8	405752	25350	8	734629	53320	7	690213	67568
Limestone	'000 tonnes	79	31122	3164728	83	33678	3645433	84	36811	4268615
Lime kankar	tonne	3	2405	636	2	2919	800	2	1665	450
Limeshell	tonne	2	8583	1717	2	8418	3030	2	4330	1357
Mica (crude)	tonne	20	2044	33558	29	1286	36383	24	1240	33814
Mica (waste & scrap)**	tonne	-	3848	-	-	3114	-	-	2667	-
Ochre	tonne	2	10650	476	2	8292	377	4	15448	788
Pyrophyllite	tonne	2	258	54	1	15	2	-	-	-
Quartz	tonne	31	111981	16719	18	101504	14440	16	88180	11749
Quartzite	tonne	-	-	-	-	156	8	-	260	13
Silica sand	tonne	44	751093	41780	38	922686	63753	27	2181564	111315
Sand (others)	tonne	9	1875872	55908	9	1206032	37406	7	901161	32346
Shale	tonne	-	334796	15271	3	464698	18348	3	390540	15895
Slate	tonne	1	22	4	-	-	-	-	-	-
Talc/steatite/soapstone	tonne	38	74046	23691	37	79148	24572	27	67869	20552
Vermiculite	tonne	2	3845	1730	2	10336	5206	3	9116	3948
Minor minerals@		-	-	33675621	-	-	81894496	-	-	81894496

Note : The number of mines excludes petroleum (crude), natural gas (utilised) and minor minerals.

** Relates to coal mines as on 31.03.2008.*

*** Includes mine waste obtained while dressing of crude mica.*

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

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Mineral-based Industry

The principal large and medium-scale mineral-based industries in the State in organised sector are given Table - 9.

Table - 9 : Principal Mineral-based Industries in Andhra Pradesh

Industry/plant	Capacity ('000 tpy)
Abrasives	
Grindwell Norton Ltd, Renigunta, Dist. Chittoor	5
Aluminium Foil	
Indal, Kollur	3
Asbestos Products	
Bhagyanagar Wood Plast Ltd, Nandikandi, Dist. Medak	60
Hyderabad Industries Ltd, Sanathnagar, Dist. Rangareddy	160
Hyderabad Industries Ltd, Thimmapur	230
Hyderabad Industries Ltd, Ibrahimpatnam, Dist. Krishna	45
J.J. Spun Pipe Industries, Arsapalli Dist. Nizamabad	4.5
Ramco Industries, Jaggaipet, Dist. Krishna	225
Visaka Industries Ltd, Medak	12.3
Bleaching Clay	
Ashapura Clay Tech. Ltd, Dharur, Dist. Ranga Reddy	20(Fuller's earth granules) 15(Bentonite granules)
Cement	
ACC Ltd, Mancherla, Dist. Adilabad	225
Andhra Cements Ltd, Gandhi Nagar, Vijayawada (G)	240
Andhra Cements Ltd, (Visaka Cement Works) Durga Nagar, Dist. Vishakhapatnam (G)	600
Andhra Cements Ltd : Durga Cement Works, Dacheipalli, Dist. Guntur	1000
Anjani Portland Cements Ltd, Anjanipuram, Dist. Nalgonda	400
Bhagya Lakshmi Cement Ltd, Vajinapaalli Dist. Nalgonda	99
CCI Ltd, Adilabad, Dist. Adilabad	400
CCI Ltd, Tandur, Dist. Rangareddy	1000
Chaanakya Cements Ltd, Wadapalli, Dist. Nalgonda	400
Deccan Cements Ltd, Bhavanipuram Dist. Nalgonda	797
Grey Gold Cements Ltd, Mattampally Dist. Nalgonda	50

(Contd.)

Table - 9 (Contd.)

Industry/plant	Capacity ('000 tpy)
Hemadri Cements Ltd, Vedadri, Dist. Krishna	181
Kesoram Cement, Basantnagar, Dist. Karimnagar	1230
Koramandal Cements Ltd, Ramapuram, Dist. Nalgonda	66
Kakatiya Cement and Sugar Industries Ltd, Dondapadu, Dist. Nalgonda	302
Keerthi Industries Ltd, Mellacheruvu, Dist. Nalgonda	297
Lanco Industries Ltd, Chittoor	80
Madras Cements, Jayantipuram, Dist. Krishna	1600
Maata Cements Ltd, Dopperla, Dist. Visakhapatnam	99
My Home Cement Industries Ltd, Mellacherur, Dist. Nalgonda	1560
Nagarjuna Construction Co. Ltd, Rachorla, Dist. Kurnool	198
Orient Cement, Devapur, Dist. Adilabad	3400
Panyam Cements, Bugganipalle, Dist. Kurnool	531
Penna Cement Industries Ltd, Talaricheruvu, Dist. Anantapur	1500
Penna Cement Industries Ltd, Ganeshpahad, Dist. Nalgonda	1000
Rain Commodities Ltd,(Priyadarshini Cements) Ramapuram, Dist. Nalgonda	1000
Sagar Cements Ltd, Mallapally, Dist. Nalgonda	198
Shri Chakra Cements Ltd, Guntur	698
Shez Cements Ltd, Chintalapalem, Dist. Nalgonda	200
The India Cements Ltd, Chilamkur, Dist. Cuddapah	1300
The India Cements Ltd, Malkapur, Dist. Ranga Reddy	1000
The India Cements Ltd, Yeraguntla	520
The India Cements Ltd, (Erstwhile Raasi Cements) Wadapally, Dist. Nalgonda	2380
The KCP Ltd., Macherla, Dist. Guntur	825
Ultra-Tech Cements Ltd, Tadipatri, Dist. Anantapur	2300
Visaka Cement Industries Ltd, Malkapur Dist. Rangareddy	1120
Zuari Cements Ltd, (Sri Vishnu Cements Works) Sitapuram, Dist. Nalgonda	1200
Zuari Cement, Krishnanagar, Dist. Cuddapah	1700

(Contd.)

STATE REVIEWS

Table - 9 (Contd.)

Industry/plant	Capacity ('000 tpy)
Chemical	
A.P.Carbides Ltd, Kurnool	23 (Calcium Carbide)
Andhra Sugars Ltd, Saggonda, Dist. West Godavari	132 (Caustic Soda) 99 (H ₂ SO ₄)
Shree Rayalseema Alkalies & Allied Chem. Ltd, Gondiparla, Dist. Kurnool	69.5(Caustic Soda) 49.8(Cl) 24.7(HCl) 23.1(KOH)
Shree Rayalseema High Strength Hypo Ltd, Gondiparla, Dist. Kurnool	9 (Bleaching Powder) 45 (H ₂ SO ₄) 15 (Oleum)
Ceramic	
Hindustan Sanitaryware & Industries Ltd, Bibinagar, Dist. Nalgonda	18
Montana International Ltd, Faralwadi, Dist. Medak	3.6
RAK Ceramics India Pvt Ltd, Jaggammagaripeta, Dist. East Godavari	NA
Restile Ceramics Ltd, Mikapur	1.4 (mill. sq m)
Spartek Ceramic India Ltd, Narsingapuram Dist. Chittoor	NA
Fertilizer	
Coramandal Fertilizer Ltd, Vizag	124.00 (N ₂) 166.00(P ₂ O ₅)
Godavari Fertilizers & Chemicals Ltd, Kakinada, Dist. East Godavari	1000 (DAP)
Krishna Industrial Corpn. Ltd, Nidavolve, Dist. West Godavari	66.00(SSP) 33.5(H ₂ SO ₄)
Nagarjuna Fertilizers & Chemicals Ltd, Kakinada, Dist. East Godavari	549.60(N ₂)
Subhodaya Chemicals, Govaripatnam, Dist. West Godavari	100 (SSP)
The Andhra Sugars Ltd, Kovvur, Dist. West Godavari	66 (SSP) 45 (H ₂ SO ₄)
Glass	
Ceat Ltd, Thimmapur, Dist. Mahaboobnagar	10
Triveni Glass Ltd, Kondagudem, Dist. West Godavari	10 (mill. sq m)
Iron & Steel	
Visakhapatnam Steel Project, Visakhapatnam	5256 (Sinter) 3400 (pig iron) 2656(saleable steel) 42 (Amm. Sulphate)
Pig Iron	
Lanco Industries Ltd, Chittoor	175
Mid-west Iron & Steel Co Ltd, Srikakulam	90
Sathavahana Ispat Ltd, Anantapur,	120

(Contd.)

Table - 9 (Concl.)

Industry/plant	Capacity ('000 tpy)
Pellets	
Essar Steel Ltd, Visakhapatnam	8000
Sponge Iron	
Binjusaria Sponge & Power Pvt. Ltd, Farooq Nagar, Dist. Mahaboobnagar	30
GSAL (India) Ltd, Srirampuram, Dist. Vijayanagaram	220
Kumar Metallurgical Corpn. Ltd, Nalgonda	60
Reactive Metals of India Ltd, Appajipally Dist. Mahaboobnagar	100 (TPD)
Sunder Steels Ltd, S.D.Road, Secundarabad	24
Sponge Iron India Ltd, Paloncha, Dist. Khammam	60
Ferro Alloys	
Andhra Ferro Alloys Ltd, Kothavalasa, Dist. Vijayanagaram	20
FACOR, Ltd, Shreeramnagar, Dist. Vijayanagaram	72
GMR Technologies & Ind, Ltd, Ravivalasa	25
Jindal Strips Ltd, Kothavalasa, Dist. Vizianagaram	40
Nav Bharat Ferro Alloys Ltd, Paloncha Dist. Khammam	125
Shree Sarda Alloys Ltd, Ravivalasa	6
VBC Ferro Alloys Ltd, Rudraram, Dist. Medak	37
Refractory	
Carborandum Universal Ltd, Visakhapatnam	3.6
MPR Refractories Ltd, Medak	9.5
RHI Clasil Ltd, Venkatapuram, Visakhapatnam	50
Raasi Refractories, Narketapally, Dist. Nalgonda	35
Vesuviusindia Ltd, Visakhapatnam	24
Sea Water Magnesia	
Birla Periclase, Visakhapatnam	50
Graphite Crucible*	
Khandnelwal Crucible and Mineral Industries, Rajamundry, Dist. East Godavari	NA
Lead-zinc	
HZL, Vizag Zinc Smelter, Visakhapatnam	56(Zn)
Petroleum Refinery	
HPCL, Vizag	7500
ONGC, Tatipaka	78

* As per All India Graphite Crucible Manufacturers Association, Rajamundry, about 44 graphite crucible plants operate in the region in small and medium scale. However, information on installed capacity are not available.

ARUNACHAL PRADESH**Production****Mineral Resources**

The important mineral resource of the State is **petroleum & natural gas** and its chief occurrence is reported in Ningru and Dam Duma areas. These hydrocarbon deposits are located in the Assam Arakan Fold Belt (AAFB) and Upper Assam basin in the State. The State also reports resources of **coal** in Namchick Namphuk Coalfields; **dolomite** in West Kameng district; **fuller's earth** in Tirap district; **graphite** in Lohit, Siang and Upper Subansiri districts; **limestone** in Dibang Valley, Lohit, Siang and Upper Subansiri districts and **quartzite** in West Kameng district (Tables - 10(A) and 10(B)).

The value of mineral production in Arunachal Pradesh at Rs. 57 crore in 2007-08 decreased by 5.5% as compared to that of the previous year. Almost the entire value of the mineral production in the state during 2007-08 was accounted for by petroleum (crude) and to a nominal extent by minor minerals (Table-11).

The production value of minor minerals was estimated at Rs. 15 lakh for the year 2007-08. The index of mineral production in Arunachal Pradesh (base 1993-94=100) was 207.99 in 2007-08 as against 220.20 in the previous year.

Table – 10(A) : Reserves/Resources of Minerals as on 1.4.2005 : Arunachal Pradesh

Mineral	Unit	Total Reserves (A)	Remaining resources				Total resources (A+B)
			Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	
Dolomite	'000 tonnes	-	204	77633	-	77837	77837
Fuller's earth	tonne	-	10700	20000000	-	20010700	20010700
Graphite	tonne	-	-	-	72758257	72758257	72758257
Limestone	'000 tonnes	-	49220	433575	-	482795	482795
Quartzite	'000 tonnes	-	-	5270	-	5270	5270

Figures rounded off.

Resources of petroleum crude and natural gas in the State are included in Assam and are not available separately.

Table – 10(B) : Reserves of Coal as on 1.4.2007 : Arunachal Pradesh

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total/Namchik	31.23	40.11	18.89	90.23

Source: Coal Directory of India, 2006-07.

STATE REVIEWS

**Table – 11 : Mineral Production in Arunachal Pradesh, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		-		580803	-		603083	-		569663
Petroleum (crude)	'000 tonnes	-	104	579280	-	108	601560	-	102	568140
Minor minerals @		-	-	1523	-	-	1523	-	-	1523

Note : The number of mines for petroleum (crude), natural gas (utilised) and minor minerals are not available.

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

ASSAM

Mineral Resources

Coal, petroleum & natural gas, limestone and minor minerals are the chief mineral resources of the State. **Coal** occurs in United Mikirs, North Cachar Hills, Sibsagar and Lakhimpur districts. Coal extracted from the State is friable and contains high sulphur. **Petroleum & natural gas** occurs in Digboi oilfields, Lakhimpur district and Moran and Rudrasagar oilfields in Sibsagar district located in Assam Arakan Fold Belt (AAFB), Upper Assam and Assam basins. **Limestone** occurs in Karbi Anglong, North Cachar Hills and Nagaon districts. Besides, **china clay** occurs in Karbi Anglong and Lakhimpur districts; **fireclay** in Dibrugarh, Karbi Anglong, North Cachar Hills and North Lakhimpur districts; **fuller's earth** in Nalbari district; **granite** in Goalpara, Kamrup and Karbi Anglong districts, **iron ore (hematite)** in Kokrajhar district; **iron ore (magnetite)** in Bhuburi, Goalpara & Kokrajhar districts; **quartz/silica sand** in Nagaon district, and **sillimanite** in Karbi Anglong & Nagaon districts (Tables - 12(A) and 12(B)).

Exploration & Development

The State's DGM establish the thickness, extension and grade of Sylhet limestone in

Umrangshu area of North Cachar Hills district, conducted mapping, sampling and drilling operations. The total thickness of limestone band is about 90 to 98 m and its strike extension is about 1,000 m. In 2007-08, MECL conducted 564 m promotional drilling on behalf of Ministry of Coal in Makum Coalfield in West of Tirap.

ONGC and OIL continued their seismic survey and drilling for exploration of petroleum & natural gas. In 2006-07, ONGC discovered new oil prospects in Kalyanpur structure in Golaghat and Jorhat districts and one oil prospects each in Laiplingaon and Meykeypore structures in Sibsagar districts. In 2007-08, new oil prospects were discovered in Disangmukh, Panidihing in Sibsagar district, Babejia in Golaghat district and in Mkrang structures in Jorhat district.

In 2006-07 OIL made significant discoveries of oil in Baghjan, Santi and Barekuri structures and of gas from Baghjan structure in Tinsukia district. In 2007-08, OIL further reported discoveries of oil from South Chandmari, Hapjan and Makum structures in Tinsukia district; from Sapkaint and Kathaloni structures in Dibrugarh district and of gas from Khatkhathi structure at Barail in Sibsagar district. Details of exploration activities conducted by OIL and ONGC for Petroleum & Natural Gas during 2006-07 and 2007-08 are furnished in Table - 13.

STATE REVIEWS

Table – 12 (A) : Reserves/Resources of Minerals as on 1.4.2005 : Assam

Mineral	Unit	Reserves						Remaining resources						Total resources (A+B)
		Proved STD111	Probable STD121 STD122	Total (A)	Pre-feasibility STD221 STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334	Total (B)	Total resources (A+B)			
China clay	'000 tonnes	-	131	-	3360	-	392	-	160	-	-	-	3912	4043
Fireclay	'000 tonnes	-	-	-	-	-	44	-	3117	-	-	-	3161	3161
Fuller's earth	tonne	-	-	-	-	-	-	-	18860000	-	-	-	18860000	18860000
Granite (Dim. stone)	'000 cu m	-	-	-	-	513000	-	800	70150	-	-	-	583950	583950
Iron ore (Hematite)	'000 tonnes	-	-	-	-	-	8600	2400	1600	-	-	-	12600	12600
Iron ore (Magnetite)	'000 tonnes	-	-	-	-	-	4240	1600	9540	-	-	-	15380	15380
Limestone	'000 tonnes	57156	157519	2000	216675	-	4257	98233	32200	953572	-	-	1088262	1304937
Quartz-silica sand	'000 tonnes	-	-	-	-	-	-	-	1790	-	-	-	1790	1790
Sillimanite	tonne	-	-	-	-	-	-	850000	6700	3748000	-	-	4604700	4604700

Figures rounded off.

The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2007 are 133.76 million tonnes and 119.74 billion cu m, respectively. The figures include those of Nagaland, Tripura and Arunachal Pradesh.

STATE REVIEWS

Table – 12(B) : Reserves of Coal as on 1.4.2007 : Assam

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	314.59	26.83	34.01	375.43
Singrimari	-	2.79	-	2.79
Makum	304.87	9.85	1.19	315.91
Dilli-Jeypore	9.03	14.19	30.80	54.02
Mikir Hills	0.69	-	2.02	2.71

Source : Coal Directory of India, 2006-07.

Table – 13 : Exploration for Petroleum & Natural Gas in Assam, 2006-07 and 2007-08

Year/Agency	Drilling					
	Seismic Survey		Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07						
ONGC	251.19	232.00	6 *	25410 *	14 *	58419 *
OIL	414.53 **	923.39 **	13 ***	34326 ***	20	57705
2007-08						
ONGC	189.59	435.39	11 *	43830 *	24 *	57624 *
OIL	154.34 **	1145.45 **	12	39930	23	69190

* Including Meghalaya and Nagaland

** Including Arunachal Pradesh and NEF

*** Including BVEP

Production

The value of mineral production in 2007-08 in Assam at Rs. 3,173 crore increased by 1.6% as compared to that in the previous year. Assam contributed about 2.8% to the total value of mineral production in the country in 2007-08. Petroleum (crude) was the principal mineral produced in the state, contributing 76% in the total value followed by natural gas (utilized) 16%, coal 6% and the rest by limestone and minor minerals in 2007-08 (Table-14).

Assam was the third largest producer of petroleum (crude) sharing about 12.8% of the total production in the country. The production in terms of quantity of natural gas (utilised) increased

by 2.5%, coal 4.9% and limestone 6.4% whereas the production of petroleum (crude) decreased marginally.

The production value of minor minerals was estimated at Rs.34 crore for the year 2007-08. The number of reporting mines in 2007-08 was 11 as against 9 in the previous year. The index of mineral production in Assam (base 1993-94 =100) was 95.37 in 2007-08 as against 95.70 in the previous year.

Mineral-based Industry

The principal large and medium-scale mineral-based industries in the organised sector in the State are given in Table -15.

STATE REVIEWS

**Table – 14 : Mineral Production in Assam, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		9		31783281	9		31227608	11		31734365
Coal	'000 tonnes	5	1101	2038000	5	1050	1386000	7*	1101	2001398
Natural gas (utilised)**	m cu m	-	2456	4420800	-	2565	4924800	-	2628	5045760
Petroleum (crude)	'000 tonnes	-	4474	24920180	-	4401	24513570	-	4357	24268490
Limestone	'000 tonnes	4	406	61748	4	360	60685	4	383	76164
Sulphur#	tonne	-	22	-	-	259	-	-	224	-
Minor minerals@		-	-	342553	-	-	342553	-	-	342553

Note : The number of mines excludes petroleum (crude), natural gas (utilised) and minor minerals.

** Relates to coal mines as on 31.03.2008.*

*** Includes production of natural gas (utilised) for non-captive use in public sector in Arunachal Pradesh.*

Recovered as by-product from oil refinery.

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

Table – 15 : Principal Mineral-based Industries in Assam

Industry/plant	Capacity ('000 tpy)
Asbestos Products	
Assam Roofing Ltd, Bonda, Guwahati	NA
Cement	
Barak Valley Cements Ltd, Badarpurghat, Dist. Karimganj	460 (TPD)
CCI Ltd, Bokajan, Dist. Karbi Anglong	198
Poneharatna Cement Pvt Ltd, Borera Titabor, Dist. Jorhat	81
R.J.Cement Industries, Jabrakowa, Dist. Magon	60
River Valley Cement Corpn., Kangoo	54
Sri Balaji Cement Pvt Ltd, Charingiaogaon, Dist. Jorhat	30
Fertilizer	
Assam State Fertilizer & Chemicals Ltd, Chandrapur, Dist. Kamroop	33.00(SSP) 16.50 (H ₂ SO ₄)
Brahmaputra Valley Fertilizers Corpn. Ltd, Namrup, Dist. Dibrugarh	510 (Urea)
Petroleum Refinery	
BRPL, Bongaigaon	2350
Indian Oil Corporation, Guwahati	1000
Indian Oil Corporation, Digboi	650
NRL, Numaligarh	3000

BIHAR**Mineral Resources**

The important mineral occurrences in Bihar are **limestone** in Kaimur (Bhabhua), Munger and Rohtas districts; **mica** in Nawada district; **quartz/silica sand** in Bhagalpur, Jamui, Munger and Nalanda districts; **quartzite** in Lakhisarai, Munger

and Nalanda districts; **talcc/steatite/soapstone** in Munger district. Besides, occurrences of **bauxite** in Munger and Rohtas districts; **china clay** in Bhagalpur and Munger districts; **felspar** in Gaya, Jamui and Munger districts; **fireclay** in Bhagalpur and Purnea districts; **gold** in Jamui district; **granite** in Bhagalpur, Gaya, Jahanabad and Jamui districts; **iron ore (hematite)** in Bhagalpur district; **iron ore (magnetite)** in Gaya and Jamui districts; **lead-zinc** in Banka and Rohtas districts; and **pyrite** in Rohtas district also have been established (Tables - 16(A) and 16(B)).

Production

The value of mineral production in Bihar at Rs. 1,101 crore in 2007-08 marginally decreased from that of the previous year. Minor minerals predominate the value of mineral production accounting for 99% of the total value of mineral production in the state, followed by limestone with about 1% and a nominal contribution by quartzite and talcc/steatite/soapstone. In terms of quantity, the production of quartzite decreased by 27% and limestone by 10% while production of talcc/steatite/soapstone showed an increase of 10% as compared to previous year. The production of 8,150 tonnes of sulphur as by-product was also reported from the state (Table-17).

The production value of minor minerals was estimated at Rs. 1,085 crore for the year 2007-08 which stands even with that of previous year. The number of reporting mines in Bihar in 2007-08 was 6 as against 8 in the previous year. The index of mineral production in Bihar (base 1993-94=100) was 73.31 in 2007-08 as against 81.90 in the previous year.

Table – 16 (A) : Reserves/Resources of Minerals as on 1.4.2005 : Bihar

Mineral	Unit	Reserves				Remaining resources					Total resources (A+B)	
		Proved STD111	Probable		Total (A)	Pre-feasibility STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
			STD121	STD122								
Bauxite	'000 tonnes	-	-	-	-	-	-	4114	-	-	4114	4114
China clay	'000 tonnes	-	-	-	-	104	39	1296	-	-	1438	1438
Felspar	tonne	-	-	-	-	-	4195	4848447	-	-	4852642	4852642
Fireclay	'000 tonnes	-	-	-	-	-	-	44	-	-	44	44
Gold												
Ore (Primary)	tonne	-	-	-	-	-	27042744	101842116	94000000	222884860	222884860	222884860
Metal (Primary)	tonne	-	-	-	-	-	3.33	18.27	16	37.60	37.60	37.60
Granite (Dim. stone)	'000 cu m	-	-	-	-	-	179000	698612	-	-	877612	877612
Iron ore (Hematite)	'000 tonnes	-	-	-	-	-	-	55	-	-	55	55
Iron ore (Magnetite)	'000 tonnes	-	-	-	-	-	-	2659	-	-	2659	2659
Lead-zinc												
Ore	'000 tonnes	-	-	-	-	-	435	11000	-	-	11435	11435
Lead metal	'000 tonnes	-	-	-	-	-	-	24	-	-	24	24
Zinc metal	'000 tonnes	-	-	-	-	-	14.75	24	-	-	38.75	38.75
Limestone	'000 tonnes	4314	583	8795	13692	86379	38210	721143	-	-	845732	859424
Mica	kg	-	-	-	-	-	-	12937513	7700	12945213	12945213	12945213
Pyrite	'000 tonnes	13462	-	6680	20142	-	51419	1500000	-	-	1554419	1574561
Quartz-silica sand	'000 tonnes	-	-	-	-	-	-	23378	-	-	23378	23378
Quartzite	'000 tonnes	16	6114	12084	18213	3118	22306	227568	-	-	252992	271205
Talc/soapstone/steatite	'000 tonnes	62	-	2	64	-	-	1	-	-	1	65

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Figures rounded off.

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Table - 16(B) : Reserves of Coal as on 1.4.2007 : Bihar

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total/Rajmahal	-	-	160.0	160.0

*Source : Coal Directory of India, 2006-07***Table – 17 : Mineral Production in Bihar, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Qty	Value
All Minerals		9		10973612	8		11011171	6		11006009
Limestone	'000 tonnes	5	313	117555	5	437	150351	3	393	148037
Quartz	tonne	1	910	86	-	-	-	-	-	-
Quartzite	tonne	2	17061	5476	2	30870	10409	2	22440	7414
Sulphur*	tonne	-	8262	-	-	7679	-	-	8150	-
Talc/steatite/ soapstone	tonne	1	1466	221	1	1633	137	1	1799	284
Minor minerals@		-	-	10850274	-	-	10850274	-	-	10850274

*Note : The number of mines excludes minor minerals.*** Recovered as by-product from oil refinery.**@ Figures for earlier years have been repeated as estimates because of non-receipt of data.*

Mineral-based Industry

The existing large and medium-scale mineral-based industries in the organised sector in the State with their total installed capacities are given in Table - 18.

Table – 18 : Principal Mineral-based Industries in Bihar

Industry/plant	Capacity ('000 tpy)
Cement	
Kalyanpur Cements Ltd, Banjari Dist. Rohtas	1000
Nirman Cement Ltd, Behlta, Dist. Patna	66
Rohtas Industries Ltd, Dalmianagar, Dist. Rohtas	45
Fertilizer	
Harabhara Fertilizer, Dhanukagra	9.8(NPK)
Petroleum Refinery	
Indian Oil Corporation, Barauni	6000

CHHATTISGARH

Mineral Resources

Chhattisgarh is the sole producer of tin concentrates and is one of the leading producers of coal, dolomite and iron ore. The State accounts for about 38% tin ore, 28% diamond, 19% iron ore (hematite), 16% coal and 11% dolomite resources of the country. Important mineral occurrences of the State are **bauxite** in Bastar, Bilaspur,

Dantewada, Jashpur, Kanker, Kawardha (Kabirdham), Korba, Raigarh & Sarguja districts; **china clay** in Durg & Rajnandgaon districts; **coal** in Korba, Korba, Raigarh & Sarguja districts; **dolomite** in Bastar, Bilaspur, Durg, Janjgir-Champa, Raigarh & Raipur districts; and **iron ore (hematite)** in Bastar district, Bailadila deposit in Dantewada district, Chhote Dongar deposit in Kanker district, Rowghat, Chargaon, Metabodeli & Hahaladdi deposits in Rajnandgaon district, Boria Tibbu deposits in Dalli-Rajhara area, Durg district. Bailadila-Rowghat hill ranges in the State are considered to be one of the biggest iron ore fields in India. **Limestone** occurs in Bastar, Bilaspur, Durg, Janjgir-Champa, Kawardha (Kabirdham), Raigarh, Raipur & Rajnandgaon districts; **quartzite** in Durg, Raipur, Rajnandgaon & Raigarh districts; and **talc/steatite/soapstone** in Durg & Kanker districts.

Other minerals found in the State are **corundum** in Dantewada district; **diamond** and other gemstones in Raipur, Mahasamund and Dhamtari districts; **fire clay** in Bilaspur, Raigarh and Rajnandgaon districts; **fluorite** in Rajnandgaon district; **garnet & marble** in Bastar district; **emerald** and **gold** in Raipur district; **granite** in Bastar, Kanker & Raipur districts; **quartz/silica sand** in Durg, Jashpur, Raigarh, Raipur & Rajnandgaon districts; and **tin** in Bastar & Dantewada districts (Tables - 19(A) and 19(B)).

Exploration & Development

The details of exploration activities conducted by various agencies during 2006-07 and 2007-08 are furnished in Table - 20.

Table – 19(A) : Reserves/Resources of Minerals as on 1.4.2005 : Chhattisgarh

Mineral	Unit	Reserves						Remaining resources						Total resources (A+B)	
		Proved		Probable		Total (A)	Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
		STD 111	STD121	STD122	STD221			STD222							
Bauxite	'000 tonnes	30706	46981	11279	88966	-	36759	3823	1262	2572	14933	-	59349	148315	
China clay	'000 tonnes	914	179	1585	2678	-	600	110	-	-	11378	-	12088	14766	
Corundum	tonne	310	-	288	597	-	-	-	-	-	288	-	288	885	
Diamond	carat	-	-	-	-	-	-	-	-	-	1304000	-	1304000	1304000	
Dolomite	'000 tonnes	52108	64526	27972	144606	242	190795	6499	19840	33670	449108	1950	702105	846711	
Fireclay	'000 tonnes	-	50	12	62	-	-	-	10580	-	10336	-	20916	20978	
Fluorite	tonne	-	-	-	-	65889	153132	9288	185485	5573	126088	-	545455	545455	
Garnet	tonne	-	-	-	-	-	-	-	-	-	28800	-	28800	28800	
Gold															
Ore (primary)	tonne	-	-	-	-	-	-	-	-	600000	300000	-	900000	900000	
Metal (primary)	tonne	-	-	-	-	-	-	-	-	1.8	0.9	-	2.7	2.7	
Granite (Dim. stone)	'000 cu m	-	-	-	-	-	-	-	-	-	50057	-	50057	50057	
Iron ore (Hematite)	'000 tonnes	570227	190285	-	760512	101548	-	656	81555	526906	779609	480000	1970275	2730787	
Limestone	'000 tonnes	669205	197381	200015	1066602	-	1544395	600882	2136876	619250	3069683	-	7971087	9037689	
Marble	'000 tonnes	-	-	-	-	-	-	-	-	-	83000	-	83000	83000	
Quartz-silica sand	'000 tonnes	424	-	304	727	-	-	457	-	-	282	-	739	1466	
Quartzite	'000 tonnes	3402	4142	4121	11665	-	-	-	-	-	14688	-	14688	26353	
Talc-steatite-soapstone	'000 tonnes	22	-	8	30	-	-	-	-	70	8	-	78	108	
Tin															
Ore	tonne	188136	-	48669	236805	-	2516392	-	168326	595914	29109378	-	32390010	32626815	
Metal	tonne	73.05	-	26.40	99.45	-	369.92	-	662.49	213.60	13103.43	-	14349.44	14448.89	

Figures rounded off.

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Table – 19(B) : Reserves of Coal as on 1.4.2007 : Chhattisgarh

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	9972.77	27035.14	4442.57	41450.48
Sohagpur	94.30	10.08	-	104.38
Sonhat	199.49	2463.86	1.89	2665.24
Jhilimili	228.20	38.90	-	267.10
Chirimiri	320.33	10.83	31.00	362.16
Bisrampur	635.57	863.42	-	1498.99
Lakhanpur	365.56	85.84	-	451.40
Panchbahini	-	11.00	-	11.00
Hasdeo-Arand	1183.36	2946.62	842.98	4972.96
Sendurgarh	152.89	126.32	-	279.21
Korba	4980.58	4304.45	830.18	10115.21
Mand-Raigarh	1812.49	14759.22	2534.33	19106.04
Tatapani-Ramkola	-	1414.60	202.19	1616.79

*Source : Coal Directory of India, 2006-07.***Table – 20 : Details of Exploration Activities in Chhattisgarh, 2006-07 and 2007-08**

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
2006-07							
GSI							
Coal							
Mand-Raigarh Coalfield Raigarh	Nayadih block	-	-	-	-	-	Ten regional coal seams varying in thickness from 0.29 to 8.3 m have been intersected between the depth range of 70.13 m and 411.66 m.
-do-	Sithra-Kurekela area	-	-	-	-	-	Nine regional Barakar coal seams varying in cumulative thickness from 8.41 to 10.2 m were intersected between the depth range of 102.39 m and 665.28 m.
Hasdo-Arand Coalfield Sarguja	Saidu block	-	-	-	-	-	Four regional Barakar coal seams varying in thickness from 1.51 to 9.07 m have been intersected within a depth range from 15.58 m to 187.94 m.
Tatapani-Ramkola Coalfields Sarguja	Reonti block	-	-	-	-	-	Regional coal seams (1.49 to 11.8 m cumulative thickness) were intersected at depths between 289.69 m and 493.94 m. Down dip continuation of Barakar coal seams established for about 1 km.

(Contd.)

STATE REVIEWS

Table - 20 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Bisrampur Coalfields Sarguja	Ulia-Gamhardih area	-	-	-	-	-	Coal seams varying in thickness from 0.54 to 11.17 m were intersected at depth between 10.35 m and 171.40 m.
Gold Raipur	Baghmara block Sonakhan area	-	-	-	-	-	Drilling & trenching indicated continuation of mineralisation in the Western part. Samples from one trench indicated gold values ranging from 0.2 to 2.1 g/t.
Iron Ore Kanker	Aridongri area	-	-	-	-	-	Detailed mapping and sampling were conducted. An iron ore body of 550 m strike length and 4 to 5 m in width with Fe content varying from 57.22 to 69.5% was established.
DGM Bauxite Kabirdham (Kawardha)	Bandhatola	1:50,000 1:4,000	122 1.36	-	-	488	Fifty-five lakh tonnes of bauxite reserves were estimated in Duldula and Akalijharia areas.
Surguja	Patharai Sarphanja area of Mainpat Plateau	1:50,000	2.04	246	2670	1166	Six lakh tonnes of metal grade bauxite reserves have been proved in Patharai block with Al ₂ O ₃ content ranging from 42 to 55%.
Bauxite, Dolomite, Iron ore and Limestone Kabirdham (Kawardha)	Pandharia teh.	1:50,000	1770	-	-	279	25 pockets of bauxite have been identified in various localities. Reserve estimate of about 11 million tonnes of metal grade bauxite were established. 1.77 million tonnes of dolomite reserves were estimated. A total of 1.15 million tonnes of iron ore reserves were estimated. Eight localities of limestone of different dimensions have been located and 69.21 million tonnes of limestone reserves were estimated.

(Contd.)

STATE REVIEWS

Table - 20 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Coal							
Korba Coalfields Korba	Saila block, Saila Pali area	1:50,000	190	8	1348.65	100	Eleven coal seams were inter- sected and a total of 195.4 million tonnes of coal reserves estimated.
Mand- Raigarh Coalfields Raigarh	Dhaurabhata, Gare Sector 1-A	-	-	2	671.45	-	Thirteen coal horizons were intersected. Thickness of seams intersected between depth range of 104.95 and 325.00 m varied from 0.60 to 6.53 m.
Surguja	Sankargarh area	1:50,000	40	3	282	21	Seven carbonaceous bands were encountered upto a depth of 195.6 m, out of which only the upper most seam is likely to be workable. About 41.75 million tonnes of coal reserves have been estimated.
Iron ore							
Dantewada (South Bastar)	North Bailadila	1:50,000	102	-	-	88	Five million tonnes of iron ore reserves containing 60 to 66% Fe have been estimated.
Kanker	Rawghat	1:50,000	168	-	-	60	Fifteen million tonnes of high grade hematite reserves containing 60 to 68% Fe have been estimated.
-do-	Aridongri	1:50,000 1:4,000	80 0.172	-	-	60	About 1.10 million tonnes of iron ore reserves containing 64 to 68% Fe have been estimated.
Kabirdham & Rajnandgaon	Chelikama, Bachhrukona, Khara, Nachaniya, etc.	1:50,000 1:4,000	110 0.5	-	-	281	Six new localities of iron ore having strike length of about 15 km and width about 5 km have been identified. A total of 39.35 million tonnes of iron ore reserves were estimated.
MECL Coal							
Mand-Raigarh Coalfield	Talaipalli	-	-	-	22433.70	-	Conducted drilling on behalf of M/s NTPC.
NMDC Iron Ore							
South Bastar (Dantewada)	Bailadila Deposit No.10	-	-	-	-	-	As on 1.4.2007 the total reserves of iron ore were estimated at 247.74 million tonnes.

(Contd.)

STATE REVIEWS

Table - 20 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
South Bastar (Dantewada)	Bailadila Deposit No.11 B	-	-	9	1000	-	As on 1.4.2007 the total resources of iron ore was estimated at 190.6 million tonnes in Deposit No.14; 63.1 million tonnes in Deposit 11-C and 147.3 million tonnes in Deposit 11-B.
SAIL							
Iron Ore							
Durg	Dalli-Rajhara	1:2,000	220.42 (Hect.)	-	-	99	A total of about 32.98 million tonnes of hematite reserves was estimated.
BALCO							
Bauxite							
Kabirdham (Kawardha)	Bodai Daldali Bauxite mine	-	-	283	2121.3	-	Total reserves of bauxite at the end of 2006-07 was estimated at 6.3 million tonnes
-do-	Manipat Bauxite mine	-	-	-	-	-	Total reserves of bauxite at the end of 2006-07 was estimated at 8.97 million tonnes
2007-08							
GSI							
Coal							
Mand- Raigarh Coalfield	Nayadih block	-	-	-	-	-	Ten regional coal seams varying in thickness from 0.36 to 8.58 m have been intersected between the depth range of 124.78 m and 364.36 m within Barakar formation.
-do-	Chainpur block	-	-	-	-	-	Eleven regional Barakar coal seams varying in cumulative thickness from 0.89 to 12.23 m were intersected at depths between 40.36 m and 726.2 m.
Hasdo-Arand Coalfield	Saidu block	-	-	-	-	-	Four regional Barakar coal seams varying in cumulative thickness from 0.80 to 9.63 m were intersected at depths between 65.99 m and 212.62 m. Strike continuity of seams established was for about 1 km.
Sarguja							
Tatapani- Ramkola Coalfields	Reonti block	-	-	-	-	-	Five regional Barakar coal seams with cumulative thickness ranging from 1.48 to 27.33 m were recorded within the depths ranging from 246.59 to 729.8 m. Continuity of about 2 km of these coal seams have been established.
Sarguja							

(Contd.)

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Table - 20 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Diamond							
Kanker, Durg and Dhamtari	Purur and Kochwahi area	-	-	-	-	-	From the stream sediments heavy mineral concentrate, suspected ilmenite spinel and garnet were identified.
Gold							
Raipur	Baghmara block Sonakhan area	-	-	-	-	-	About 0.09 million tonnes of resources were estimated with 0.93 g/t Au content.
Iron Ore							
Kanker	Aridongri area	-	-	-	-	-	Mapping revealed 3 iron ore bands with cumulative strike length of about 1 to 2 km with width varying from 2 to 3 m. Analytical results indicated Fe content ranging from 58.47 to 69.39 percent.
DGM							
Bauxite							
Kabirdham (Kawardha)	Bandhatola	1:4,000	0.34	-	-	44	A few occurrences of bauxite were noted in Duldula and Akaljharria area.
-do-	Pondi area	1:50,000	151.55	-	-	74	Bauxite deposit occurs in the form of pockets of various dimensions. Al ₂ O ₃ content varies from 33-58.8 percent.
Surguja	Patharai west	1:4,000	2.08	199	2078.35	758	Five lakh tonnes of metal grade bauxite reserves were proved with Al ₂ O ₃ content ranging from 41 to 54.5 percent.
Coal							
Korba Coalfields							
Korba	Saila block, Saila Pali area	1:50,000	25	8	703.6	-	Fourteen coal seams were intersected and 51.15 million tonnes of coal reserves were estimated.
Mand-Raigarh Coalfields							
Raigarh	Dhaurabhata, Gare Sector 1-A	-	-	2	1562.25	-	Thirteen coal horizons were intersected and 42.24 million tonnes of coal reserves were estimated.
Iron Ore							
Dantewada South Bastar	North Bailadila	1:50,000	280	-	-	105	Five million tonnes of iron ore reserves containing 60 to 66% Fe were estimated.
Kanker	Rawghat	1:50,000	202	-	-	96	Fifteen million tonnes of high grade hematite reserves containing 63 to 67% Fe were estimated.

(Contd.)

STATE REVIEWS

Table - 20 (Concl'd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Iron Ore and Limestone							
Rajnandgaon	Northern part of Kabirdham & Rajnandgaon districts	1:50,000	2015	-	-	388	A total of 2.83 million tonnes of iron ore and 55 million tonnes of limestone reserves were estimated.
Limestone							
Kabirdham (Kawardha)	Sohagpur- Udka area	1:50,000 1:4,000	135 0.52	10	185.1	98	A total of 6.92 lakh tonnes of limestone reserves were estimated.
Rajnandgaon	Tekapar- Kalkasa area	1:50,000 1:4,000	25 0.48	5	178.25	58	A total of 25.68 lakh tonnes of limestone reserves were estimated.
Ultramafic rocks							
Bastar	Kondagaon Pharasgaon	1:50,000	530	-	-	175	No significant mineralisation was observed.
MECL							
Coal							
Mand-Raigarh Coalfields	Banai	-	-	-	2500.6	-	Promotional drilling on behalf of Minisry of Coal was conducted.
	Talaipalli	-	-	-	16615.15	-	Contractual drilling on behalf of M/s NTPC was conducted.
	Gare Pelma	-	-	-	5983.70	-	Contractual drilling on behalf of M/s CMDCL was carried out.
NMDC							
Iron Ore							
South Baster (Dantewada)	BIOM, Bachel Complex	-	-	11	843	-	-
South Baster (Dantewada)	BIOM, Kirundurg Complex	-	-	19	2133	-	Exploratory drilling is underway. The total reserves at Deposit No.14 was estimated at 185.95 million tonnes and at Deposit No.11 C was estimated at 65.68 million tonnes.
SAIL							
Iron Ore							
Durg	Dalli-Rajhara	1:2,000	220.42 (Hect.)	-	-	22	A total of about 31.9 million tonnes of hematite reserves was estimated.

STATE REVIEWS

Production

The value of mineral production in Chhattisgarh at Rs. 10,532 crore in 2007-08, increased by 17.5% as compared to that in the previous year. The state is ranked third in the country and accounted for 9.2% of the total value of mineral production. The important minerals produced in the state in 2007-08 were coal, bauxite, iron ore, dolomite, limestone and quartzite, which together accounted for about 99% of the entire value of mineral production in the state. Chhattisgarh was the sole producer of tin concentrate. The State is second leading producer of coal with a share of 19.7% and third largest producer of iron ore and dolomite

with the contribution of 14.9% and 23%, respectively in the country. During 2007-08, the production of bauxite in terms of quantity increased by 9.7%, coal by 8.3% iron ore by 6.9%, dolomite by 6.4% and limestone by 3.8%. There was a decline in the production of clay (others), tin concentrate and kaolin by 85%, 39% and 37%, respectively (Table-21).

The production value of minor minerals was estimated at Rs. 75 crore in both the years. The number of reporting mines in Chhattisgarh was 142 in 2007-08 as against 144 in the previous year. The index of mineral production in Chhattisgarh (base 1993-94=100) was 219.01 in 2007-08 as against 203.10 in the previous year.

**Table – 21 : Mineral Production in Chhattisgarh, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		148	-	75822512	144	-	89671849	142	-	105324176
Coal	'000 tonnes	55	76358	48937830	58	83241	53200988	57*	90172	58120363
Bauxite	tonne	10	1332165	386081	6	1592745	548687	8	1747098	525632
Iron ore	'000 tonnes	12	26084	23733808	11	28731	32676739	11	30699	43061418
Tin conc.	kg	3	98734	14838	3	100835	18362	5	61522	13723
Clay (others)	tonne	-	-	-	2	1077	135	1	160	40
Dolomite	tonne	24	1109277	252402	21	1120261	261688	19	1191958	286653
Kaolin	tonne	3	1405	166	3	2729	360	2	1706	233
Limestone	'000 tonnes	38	15088	1931566	36	14972	2140206	34	15546	2560304
Quartzite	tonne	3	23130	31327	3	23704	72562	3	3278	3640
Talc/steatite/ soapstone	tonne	-	-	-	1	228	81	2	361	129
Minor minerals@		-	-	534494	-	-	752041	-	-	752041

Note : The number of mines excludes minor minerals.

** Relates to coal mines as on 31.03.2008.*

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

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Mineral-based Industry

The important large & medium-scale mineral-based industries in the organised sector in the State are furnished in Table - 22.

Table – 22 : Principal Mineral-based Industries in Chhattisgarh

Industry/plant	Capacity ('000 tpy)
Aluminium	
Bharat Aluminium Co. Ltd, Korba	200(Alumina) 350(Aluminium)
Cement	
ACC Ltd., Jamul, Dist. Durg	1580
Ambuja Cements Ltd, Rawan, Dist. Raipur	1146
CCI Ltd, Akaltara, Dist. Janjgir-Champa	400
CCI Ltd, Mandhar, Dist. Raipur	380
Century Cement, Tilda, Dist. Raipur	2100
Grasim Cement, Rawan, Dist. Raipur	2061
Lafarge India Pvt. Ltd, Arasmeta, Dist. Janjgir-Champa	2224
Lafarge India Pvt. Ltd, Sonadih, Dist. Raipur	400
Ultra Tech Cement Ltd, Hirmi, Dist. Raipur	1600
Fertilizer	
BEC Fertilizers, Sirgitti, Dist. Bilaspur	66 (SSP)
Dharamsi Morarji Chemical Co. Ltd, Kumhari, Dist. Durg	183 (SSP & H ₂ SO ₄)
Jairam Phosphate Ltd, Farahad, Dist. Rajnandgaon	66 (SSP) 49.5 (H ₂ SO ₄)
Iron & Steel	
Bhilai Steel Plant, Bhilai	6334 (Sinters) 4080 (Pig iron) 45 (H ₂ SO ₄) 53.2 (Amm. sulphate) 3153 (Saleable steel)
Jindal Steel & Power Ltd, Raigarh	1600 (Hot metal) 1370 (Sponge Iron) 36 (Ferro chrome)
Jayaswal NECO Ltd, Raipur	600 (Pig iron) 255 (Sponge iron) 480 (Sinter) 300 (Steel)
Shri Bajrang Power & Ispat Ltd, Dist. Raipur, Urla,	210 (Sponge iron) 130 (Steel)
Shri Radhe Industries Ltd, Sirgitti, Dist. Bilaspur	30
Sponge Iron	
A.P.I. Ispat & Power Tech. Pvt. Ltd, Siltara billets, Raipur	105

Table - 22 (Contd.)

Industry/plant	Capacity ('000 tpy)
Alliance Integrated Metallics Ltd, Bemta, Dist. Raipur	500
Anjani Steel Ltd, Ujalpur, Dist. Raigarh	36
Arti Sponge & Power Ltd, Siltara, Dist. Raipur	45
Ambika Ispat (I) Pvt Ltd, Tarainal, Dist. Raigarh	30
Baldev Alloys Pvt. Ltd, Siltara, Raipur	30
Bhagavati Power & Steel Pvt Ltd, Siltara, Dist. Raipur	60
B.S. Sponge Pvt Ltd, Taraimal, Raigarh	30
Devi Iron & Power Pvt Ltd, Tandira, Dist. Raipur	30
Drolia Electro Steel Pvt Ltd, Siltara, Raipur	33
Euro Pratik Ispat Pvt Ltd, Charoda, Dist. Raipur	30
Gravity Treksim Pvt Ltd, Siltara, Dist. Raipur	30
Godavari Ispat & Power Ltd, Siltara, Dist. Raipur	495
Gopal Sponge & Power Pvt Ltd, Siltara, Dist. Raipur	30
Gitanjali Ispat & Power Pvt Ltd, Sirgitti, Dist. Bilaspur	30
GR Sponge & Power Ltd, Siltara, Dist. Raipur	37
Hare Krishna Sponge Pvt Ltd, Siltara, Dist. Raipur	30
HEG Ltd, Borai, Dist. Durg	120 (Sponge iron) 100 (Billets)
Hi-Tech Power & Steel Ltd, Parsada, Dist. Raipur	30
Ind Synergy Ltd, Katmar, Dist. Raigarh	300
Indian Ispat & Power, Siltara, Dist. Raipur	30
Kalindi Ispat Pvt. Ltd, Belpan, Dist. Bilaspur	60
Khetan Sponge & Infrastructure Pvt. Ltd, Sarora, Dist. Raipur	30
Maa Kali Alloys (Ind.) Pvt Ltd, Pali, Dist. Raigarh	30
Mangal Sponge & Steel Pvt Ltd, Bilha, Bilaspur	30
Mangala Ispat Pvt Ltd, Natvarpur, Dist. Raigarh	30
Millennium High-Tech Industries Ltd, Parsada, Dist. Raipur	30
MSP Steel & Power Ltd, Raigarh	90
Monnet Ispat Ltd, Hasaud, Raipur	800
NR Sponge Pvt. Ltd., Raipur	60

(Contd.)

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Table - 22 (Contd.)

Industry/plant	Capacity ('000 tpy)
Nalwa Sponge Iron Ltd, Taraimal, Raigarh	198
Nakoda Ispat Ltd, Siltara, Raipur	66
Navdurga Fuse Pvt Ltd, Raigarh	60
Nova Iron & Steel Ltd, Dagori, Bilaspur	150
Nutan Ispat & Power Ltd, Jaroda, Raipur	30
PD Industries Pvt Ltd, Siltara, Raipur	30
Prakash Industries Ltd, Hathenewra, Champa-Janjgir	400
Radhe Madhav Industries Pvt Ltd, Silpahari, Bilaspur	30
Raigarh Ispat & Power Ltd, Delari, Dist. Raigarh	30
Sarda Energy & Minerals Ltd, (formerly Raipur Alloys & Steel Ltd) Siltara, Dist. Raipur	210 (Sponge iron) 140 (Finished steel)
Rameswaram Steel & Power Ltd, Gharghoda, Dist. Raigarh	30
Salasar Sponge & Power Pvt Ltd, Gerwani, Dist. Raigarh	30
Sree Nakoda Ispat Ltd, Siltara, Dist. Raipur	66
Topworth Steel Pvt Ltd, Rosmada, Dist. Durg	60
Shakambri Steel & Power Pvt Ltd, Raigarh	30
Shakun Sponge Iron Pvt Ltd, Shirgitti, Dist. Bilaspur	30
Shivalaya Ispat & Power Pvt Ltd, Guma, Dist. Raipur	30
Sidhi Vinayak Sponge Iron Pvt Ltd, Raigarh	30
S.K. Sarawagi & Co. Pvt Ltd, Siltara, Dist. Raipur	60
SKS Ispat & Power Ltd, Siltara, Dist. Raipur	270
Shivshakti Steel Pvt. Ltd, Chakradharpur, Dist. Raigarh	30
Shri Sita Ispat & Power Pvt. Ltd, Borjhara, Dist. Raipur	30
Shree Shyam Sponge & Power Ltd, Bachera, Dist. Raipur	30
Singhal Enterprises Pvt Ltd, Taraimal, Dist Raigarh	156
Sunil Sponge Pvt Ltd, Siltara, Dist. Raipur	30

(Contd.)

Table - 22 (Concl.)

Industry/plant	Capacity ('000 tpy)
Trimula Sponge Iron Pvt Ltd, Siltara, Raipur	30
Vandana Global Ltd, Siltara, Dist. Raipur	210
Vasvani Industries Ltd, Siltara, Dist. Raipur	30
Ferro Alloys	
Alok Ferro Alloys Ltd, Urla, Raipur	11
Chhattisgarh Electricity Co. Ltd, Siltara Dist. Raipur	36
Deepak Ferro Alloys Ltd, Urla, Dist. Raipur	5
Indsil Energy & Electro Chemical Ltd, Urla, Dist. Raipur	24
Hira Ferro Alloys Ltd., Urla, Dist. Raipur	17
Jain Carbides & Chemicals Ltd, Urla, Dist. Raipur	49
Monnet Ispat Ltd, Hasaud, Raipur	80
Nav-chrome Ltd, Urla, Dist. Raipur	50
Standard Chrome Ltd, Barmuda, Dist. Raigarh	15
Tirumala Balaji Alloys Pvt Ltd, Raigarh	21
Refractory	
Bharat Refractory Ltd, Bhilai, Dist. Durg (Bhilai Refractory Plant)	60
Vishva Vishal Engineering Ltd, Bhilai, Dist. Durg	8.2
Silicon Carbide Crucible	
M.P. Carbon (Pvt) Ltd, Raipur	NA

DELHI**Mineral Resources**

Kaolin deposits are found in an area west of Qutub Minar at Mehrauli, Masoodpur, Kusumpur and Mahipalpur. In addition, occurrences of **fireclay** and silica material known as Badarpur **sand/quartzite** have also been reported from Delhi (Table - 23).

Mineral-based Industry

The important large and medium-scale mineral-based industries in organised sector in the State with their total installed capacities are given in Table - 24.

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Table – 23 : Reserves/Resources of Minerals as on 1.4.2005 : Delhi

Mineral	Unit	Reserves			Remaining resources				Total resources (A+B)
		Proved STD111	Probable STD122	Total (A)	Measured STD331	Indicated STD332	Inferred STD333	Total (B)	
China clay	'000 tonnes	18.66	60.11	78.77	857.32	629.65	3723.47	5210.44	5289.21
Fireclay	'000 tonnes	-	-	-	6.3	12.6	45.2	64.1	64.1

Figures rounded off.

Table – 24 : Mineral-based Industries in Delhi

Industry	No. of units	Total installed capacity (tpy)
Abrasive	1	120
Alum	1	35,500
Activated earth	1	3,600
Bleaching powder	1	10,000
Caustic soda	1	15,080
Asbestos products	1	25,000
Cement (grinding)	1	500,000
Ceramic & stoneware pipes	2	18,500
Refractory	2	39,000

GOA

Mineral Resources

Goa is well known for its iron and manganese ores. Bauxite and laterite are the other minerals produced in the State. Iron and manganese ore belts extend from south-east to north-west of the State. Manganese ores are associated with iron ores and occur as pockets of various sizes in the form of concretionary pebbles in shales. Important **iron ore** and **manganese ore** deposits are located at Bicholim, Sanguem and Satari talukas. **Bauxite** occurs in the north and south Goa districts; **kaolin** reportedly occurs in south Goa district while **quartz/silica sand** deposits occur in both north and south Goa districts (Table - 25).

Exploration & Development

Details of exploration activities conducted by M/s V.M.Salgaocar & Bro. Pvt. Ltd. during 2006-07 and 2007-08 are furnished in Table - 26.

Production

The value of mineral production in Goa at 2,421 crore in 2007-08 increased by 24% as compared to the previous year. About 99% of the total value of mineral production in Goa was contributed by iron ore. Production of bauxite and minor minerals was also reported from the state in 2007-08. During the year under review, production of iron ore increased by 2% and that of bauxite by 16% over the previous year. There was no production of manganese ore during the year (Table- 27).

The production value of minor minerals was estimated at Rs. 6 crore for the year 2007-08. There were 76 reporting mines in 2007-08 as against 72 in the previous year. The index of mineral production in Goa (base 1993-94=100) was 205.45 in 2007-08 as against 201.60 in the previous year.

Table – 25 : Reserves/Resources of Minerals as on 1.4.2005 : Goa

Mineral	Unit	Reserves				Remaining resources				Total resources (A+B)	
		Proved STD 111	Probable STD121 STD122	Total Feasibility (A) STD211	Pre-feasibility STD221 STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
Bauxite	'000 tonnes	27037	1097 6492	34626	- 1320 263	5500	-	8646	-	15729	50355
China clay	'000 tonnes	-	-	-	- 16	-	-	-	-	16	16
Iron ore (hematite)	'000 tonnes	268126	93658 96919	458704	25018 33010 48403	3327	7906	136581	-	254244	712948
Iron ore (magnetite)	'000 tonnes	10738	37583 1791	50112	- 9071	-	3046	149943	1997	164057	214169
Manganese ore	'000 tonnes	28	444 2388	2860	- 706 1150	1019	423	12899	-	16197	19057
Quartz-silica sand	'000 tonnes	-	-	-	20 1736	-	-	18248	-	20004	20004

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Figures rounded off.

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Table – 26 : Details of Exploration Activities in Goa, 2006-07 and 2007-08

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (Hect.)	No. of boreholes	Meterage		
2006-07							
M/s V.M.Salgaocar & Bro. Pvt. Ltd							
Iron Ore							
North Goa	Velguem/ Surla Mine	1:2,000	105.9	14	853	-	As on 1.6.2006, the total reserves estimated is 15.99 million tonnes.
North and South Goa	Sancordem/ Malpona Mine	1:2,000	42.9	-	-	-	As on 1.6.2006, the total reserves estimated is 9.9 million tonnes.
South Goa	Sigao Mine	1:2,000	26.17	5	210	-	As on 1.6.2006, the total reserves estimated is 11.56 million tonnes.
2007-08							
M/s V.M.Salgaocar & Bro. Pvt. Ltd							
Iron Ore							
North Goa	Velguem/ Surla Mine	1:2,000	105.9	3	238	-	As on 1.6.2007, the total reserves estimated is 14.3 million tonnes.
North and South Goa	Sancordem/ Malpona Mine	1:2,000	42.9	2	48	-	As on 1.6.2007, the total reserves estimated is 9.3 million tonnes.
South Goa	Sigao Mine	1:2,000	26.17	13	653.5	-	As on 1.6.2007, the total reserves estimated is 10.8 million tonnes.

**Table – 27 : Mineral Production in Goa, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

Mineral	Unit	(Value in Rs. '000)								
		2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		76	-	11136033	72	-	19508109	76	-	24205167
Bauxite	tonne	2	25923	1800	2	111097	8332	2	129259	9694
Iron ore	'000 tonnes	69	24027	11071661	67	28723	19438965	73	29281	24138223
Manganese ore	tonne	5	5255	5306	3	3460	3562	1	-	-
Minor minerals@		-	-	57266	-	-	57250	-	-	57250

Note : The number of mines excludes minor minerals.

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

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Mineral-based Industry

The important large and medium-scale

mineral-based industries in the organised sector in the State are given in Table - 28.

Table – 28 : Principal Mineral-based Industries in Goa

Industry/plant	Capacity (‘000 tpy)
Fertilizer	
Zuari Industires Ltd, Zuarinagar Dist. South Goa	399.30 (Urea) 330 (NPK) 330 (DAP)
Pellets	
Mandovi Pellets Ltd, Mandovi	1800
Chowgule & Co. Ltd	550
Pig Iron	
Sesa Goa Ltd, Bicholim	180
Sponge Iron	
Ambey Metallic Ltd, Pissurlem, Sattari	36
Goa Sponge & Power Ltd, Santora	100
Shraddha Ispat Pvt. Ltd, Santora	60
Ferro Alloys	
Karthik Alloys Ltd	4

GUJARAT

Mineral Resources

Gujarat is the sole producer of agate, chalk, perlite and is the leading producer of fluorite (conc.), fireclay, silica sand, lignite, laterite, petroleum and natural gas and bauxite in the country. The State is the sole holder of country's perlite resources and is said to possess 69% of fluorite, 28% of diatomite, 18% of bentonite and 10% of wollastonite.

The important mineral occurrences in the State are: **agate** found in Deccan Trap flows in Bharuch district; **bauxite** in Amreli, Bhavnagar, Jamnagar, Junagadh, Kheda, Kachchh, Porbandar, Sabarkantha and Valsad districts; **ball clay** in

Banaskantha, Bharuch, Kachchh and Patan districts; **bentonite** in Amreli, Bhavnagar, Jamnagar, Kachchh and Sabarkantha districts; **china clay** in Amreli, Banaskantha, Bhavnagar, Jamnagar, Junagadh, Kachchh, Mehsana and Sabarkantha districts; **chalk** in Porbandar district; **diatomite** in Bhavnagar district; **dolomite** in Bhavnagar and Vadodara districts; **fireclay** in Bharuch, Kachchh, Mehsana, Rajkot, Sabarkantha, Surat and Surendranagar districts; **fluorite** in Vadodara and Bharuch districts; **fuller's earth** in Bhavnagar and Kachchh districts; **gypsum** in Bhavnagar, Jamnagar, Junagadh, Kachchh and Surendranagar districts; **lignite** in Bharuch, Bhavnagar, Kachchh and Surat districts; **limestone** in Amreli, Banaskantha, Bharuch, Bhavnagar, Jamnagar, Junagadh, Kheda, Kachchh, Panchmahals, Porbandar, Rajkot, Sabarkantha,

STATE REVIEWS

Surat, Vadodara and Valsad districts; **ochre** in Banaskantha, Bhavnagar and Kachchh districts; **perlite** in Rajkot district; **petroleum and natural gas** in oil fields of Ankaleshwar, Kalol, Navgam, Balol and Cambay in Cambay onshore and offshore basins; **quartz/silica sand** in Bharuch, Bhavnagar, Dahod, Kheda, Kachchh, Panchmahals, Rajkot, Sabarkantha, Surat, Surendranagar, Vadodara and Valsad districts; and **talc/steatite/soapstone** in Sabarkantha district.

Other minerals that occur in the State are **apatite** and **rock phosphate** in Panchmahals district; **calcite** in Amreli and Bharuch districts; **copper ore** in Banaskantha district; **granite** in Banaskantha, Mehsana and Sabarkantha districts; **graphite** in Panchmahals district; **lead-zinc** and **marble** in Banaskantha and Vadodara districts; **manganese ore** in Panchmahals and Vadodara districts; **vermiculite** in Vadodara district; and **wollastonite** in Banaskantha district (Tables - 29(A) and 29(B)).

Exploration & Development

The details of exploration activities conducted by various agencies for the exploration of lignite and other minerals during 2006-07 and 2007-08 are furnished in Table - 30(A).

ONGC continued seismic survey and drilling for exploration of petroleum & natural gas in the Cambay basin. In 2006-07, new oil prospects namely, Mehraj in Kheda district, Wadsar in Ahmedabad district and gas prospect, namely, Deloli in Mehsana district were discovered. Besides, new oil pool in Linch, Mewad and Sobhasan structures in Mehsana district and in Kosamba structure in Bharuch district also were announced.

In 2007-08, ONGC discovered new oil prospects, namely, Ankleshwar in Bharuch district and Chaklasi & Akholjuni in Kheda district along with Karzan in Vadodara district, South Kadi, Mewad and Linch in Mehsana district; and Halisa in Ahmedabad district. Additionally, new

gas prospect, namely, Dubka in Vadodara district; Ankleshwar & Kosamba in Bharuch district; Olpad in Surat district were discovered in 2007-08. Details of exploration activities by ONGC during 2006-07 and 2007-08 are furnished in Table - 30(B).

Gujarat State Petroleum Corporation Ltd has made significant discoveries of oil and gas in Tarapur block. The company has also discovered oil & gas in Sanand, Mirali block.

Production

The value of mineral production in Gujarat in 2007-08 at Rs. 6,345 crore showed a marginal increase over that of the previous year. The state is ranked sixth in the country and accounted for about 5.54% of the total value of mineral production in India during 2007-08. Gujarat was the sole producer of agate, chalk and fluorite (conc.) and the leading producer of bauxite, clay (others) and kaolin in the country. The state was also the second largest producer of lignite, natural gas (utilised), petroleum (crude) and quartz in the country during 2007-08. The production of bauxite in terms of quantity increased to more than double and that of lignite increased by 20% during the year. The minerals reporting fall in production during 2007-08 were chalk 9%, clay (others) 32%, dolomite 46%, kaolin 8%, fireclay 56%, silica sand 37%, limestone 35%, natural gas (utilised) 11% and laterite 9%. There was a marginal decrease in production of petroleum (crude). The reason for fall in production of limestone was mainly lack of demand whereas in fireclay it was due to lack of dumping space and temporary discontinuation of mines, respectively (Table-31).

The production value of minor minerals was estimated at Rs. 606 crore for the year 2007-08 which was the same as that of the previous year. The number of reporting mines in the state was 430 in 2007-08 as compared to 457 in the previous year. The index of mineral production in Gujarat (base 1993-94=100) was 125.33 in 2007-08 as against 125.40 in the previous year.

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Table – 29(A) : Reserves/Resources of Minerals as on 1.4.2005 : Gujarat

Mineral	Unit	Reserves					Remaining resources					Total resources (A+B)	
		Proved STD 111	Probable		Feasibility STD211	Pre-feasibility		Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
			STD121	STD122		STD221	STD222						
Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)	Total (A)		
Apatite	tonne	-	-	-	-	-	-	-	-	-	351000	351000	351000
Ball clay	tonne	-	103560	146250	249810	-	-	-	-	49670	-	49670	299480
Bauxite	'000 tonnes	43952	2400	21861	68213	-	40440	27806	328	39354	-	120123	188336
Bentonite	tonne	-	-	12460170	12460170	-	-	-	1904	81927561	-	84093278	96553448
Calcite	tonne	-	-	-	-	-	-	-	-	12380	-	12380	12380
China clay	'000 tonnes	38581	924	27685	67190	-	148	867	936	38917	3	43958	111148
Copper													
Ore	'000 tonnes	-	4955	845	5800	-	-	-	-	7131	-	7260	13060
Metal	'000 tonnes	-	80.75	13.78	94.53	-	-	-	-	113.38	-	114.07	208.60
Diatomite	'000 tonnes	-	-	-	-	-	-	-	-	0	-	811	811
Dolomite	'000 tonnes	28096	119	26085	54300	-	30716	62435	63780	293000	-	470194	524494
Fireclay	'000 tonnes	1629	337	797	2763	-	265	418	909	53744	-	55606	58369
Fluorite	tonne	7663840	-	200160	7864000	-	-	5723360	-	337920	-	6061280	13925280
Granite (dim. stone)	'000 cu m	-	-	-	-	-	-	-	-	421296	-	421296	421296
Graphite	tonne	-	-	-	-	-	-	-	-	835000	-	3355805	3355805
Gypsum	'000 tonnes	9	9	24	42	-	-	-	2520805	15138	-	15138	15180
Lead-zinc													
Ore	'000 tonnes	-	4955	845	5800	-	-	-	-	129	-	200	6129
Lead metal	'000 tonnes	-	104.37	17.81	122.18	-	-	-	-	3.90	-	3.90	126.08
Zinc metal	'000 tonnes	-	224.04	39.37	263.41	-	-	-	-	1.10	-	1.10	264.51
Lead & zinc metal	'000 tonnes	-	-	-	-	-	-	-	-	0.90	-	0.90	0.90
Limestone	'000 tonnes	585071	122861	222216	930148	234	86484	167762	857691	17943215	-	19082262	20012410
Manganese ore	'000 tonnes	-	-	-	-	-	-	-	-	2954	-	2954	2954
Marble	'000 tonnes	-	-	-	-	-	26571	45000	17129	5040	-	93740	93740
Ochre	tonne	14385	33209	65047	112641	-	-	26520	6210	2906608	-	2946309	3058950
Perlite	'000 tonnes	188	-	316	504	-	-	334	-	-	1051	1385	1889
Quartz-silica sand	'000 tonnes	26367	3111	21964	51442	-	2442	7708	2999	30017	-	45311	96753
Phosphorite/rock phosphate	tonne	-	-	-	-	-	-	-	-	314820	-	314820	314820
Talc/soapstone/steatite	'000 tonnes	8	1	8	16	-	18	8	-	4	-	29	45
Vermiculite	tonne	-	-	-	-	-	-	-	-	1960	-	1960	1960
Wollastonite	tonne	-	-	-	-	-	-	-	-	1990000	-	1990000	1990000

Figures rounded off.
The proved and indicated balance recoverable reserves of crude oil and natural gas as on 1.4.2007 in the state are 131.62 million tonnes and 76.72 billion cu m, respectively.

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Table – 29(B) : Reserves of Lignite as on 1.4.2007 : Gujarat

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	785.27	259.40	1618.08	2662.75
Bharuch	266.38	118.59	949.61	1334.58
Bhavnagar	-	-	299.17	299.17
Kachchh	300.61	32.10	33.09	365.80
Surat	218.28	108.71	336.21	663.20

*Source : Coal Directory of India, 2006-07.***Table - 30(A) : Details of Exploration Activities in Gujarat, 2006-07 and 2007-08**

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
2006-07							
GSI							
Base Metals							
Panchmahals & Vadodara	Khandia-Masabar areas	-	-	-	-	-	Chalcopyrite malachite bornite and galena specks were recorded at places.
MECL							
Lignite							
Surat Lignite Field	Valia	-	-	4	858.4	-	Contractual drilling on behalf of Neyveli Lignite Corpn was carried out.
GMDC							
Lignite							
Kachchh	Panandhro	-	-	-	-	-	Balance geological reserves of lignite estimated at 22 million tonnes and of limestone at 63 million tonnes were established.
2007-08							
GSI							
Phosphorite							
Panchmahals	Chalvad- Ranjitpura area	-	-	-	-	-	The P ₂ O ₅ content in analysed limestone and dolomite samples varied from <1 to 12%.
MECL							
Lignite							
Surat Lignite Field	Valia	-	-	-	8645.3	-	Contractual drilling on behalf of M/s NLC was carried out. About 560 million tonnes of indicated reserves were upgraded into proved category.
GMDC							
Lignite							
Bhavnagar	Surka (N)	-	-	23	328	-	A total of 107 million tonnes of lignite reserves were estimated.
Kachchh	Panandhro	-	-	1	87.45	-	A total of 14 million tonnes geological reserves of lignite and 63 million tonnes of limestone were estimated.

STATE REVIEWS

Table – 30(B) : Exploration for Petroleum & Natural Gas by ONGC in Gujarat, 2006-07 and 2007-08

Year	Drilling					
	Seismic Survey		Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07	102.09	920.95	32	57463	96	165801
2007-08	102.88	1241.27	36	54967	120	199552

**Table – 31 : Mineral Production in Gujarat, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Quantity	Value	No. of mines	Quantity	Value	No. of mines	Quantity	Value
All Minerals		431	-	58883930	457	-	63107967	430	-	63445599
Lignite	'000 tonnes	4	8944	4980556	4	9808	6635308	6	11788	8277771
Natural gas (utilised)	m cu m	-	3831	11493000	-	3294	10540800	-	2931	9379200
Petroleum (crude)	'000 tonnes	-	6251	34818070	-	6213	34606410	-	6177	34405890
Bauxite	tonne	96	3114314	514844	104	5914792	1019514	109	12515094	2278084
Agate	tonne	1	9	5	1	38	23	1	15	9
Ball clay	tonne	1	4785	718	1	30	4	2	25	3
Chalk	tonne	119	148352	41208	128	210838	69137	131	192402	63057
Clay (others)	tonne	4	498253	13841	5	534667	15696	2	364389	10799
Dolomite	tonne	16	47516	5297	17	146395	22662	12	79032	10203
Fireclay	tonne	18	113269	6350	18	81190	5108	11	35451	2531
Fluorite (conc.)	tonne	1	3764	35082	1	-	-	1	3794	45555
Gypsum	tonne	3	109	15	3	58	10	4	128	17
Kaolin	tonne	30	417188	80233	32	526064	97702	30	485837	97751
Laterite	tonne	2	226552	9590	2	261962	14670	2	237310	21648
Limestone	'000 tonnes	107	19121	1971499	111	33861	3929477	97	22120	2743616
Ochre	tonne	2	530	5	3	772	77	1	420	42
Perlite	tonne	1	122	110	1	68	68	-	-	-
Quartz	tonne	9	53142	4479	9	72490	6869	7	69255	6361
Silica sand	tonne	15	532933	65345	15	607261	81186	12	383349	39876
Talc/soapstone/ steatite	tonne	2	336	34	2	1065	107	2	472	47
Sulphur*	tonne	-	13296	-	-	12887	-	-	13608	-
Minor minerals@		-	-	4843649	-	-	6063139	-	-	6063139

Note : The number of mines excludes petroleum (utilised), natural gas and minor minerals.

** Recovered as by-product from oil refineries.*

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