

STATE REVIEWS

Mineral-based Industry

The important large and medium-scale mineral-based industries in the organised sector in the State are given in Table - 80.

Table – 80 : Principal Mineral-based Industries in Rajasthan

Industry/plant	Capacity ('000 tpy)
Cement	
ACC Ltd, Lakheri, Dist. Bundi	480
Aditya Cement, Shambhupura	1750
Gujarat Ambuja Cements Ltd, Rabriyawas Dist. Pali	1800
Binani Cement, Binanipuram, Dist. Sirohi	4500
Birla Corporation Ltd, Chittorgarh	
Birla Cement Works, Chanderia	720
Chanderia Cement Works	1200
Chanderiya Cement Works, Chittorgarh	1280
Grasim Industries Ltd, Kharia Khangar Dist. Jodhpur	560
J.K.Udaipur Udyog Ltd, Udaipur	900
J.K.Cement, Nimbahera, Dist. Chittorgarh	3300
J.K.Cement, Mangrol	750
J.K. White Cement Works, Gotan, Dist. Nagaur	300
J.K.Laxmi Cement, Banas, Dist. Sirohi	3500
Manglam Cement, Morak, Dist. Kota	1500
Neer Shree Cement, Morak, Dist. Kota	600
Shree Cement Ltd,	
Beawar, Dist. Ajmer	2600
Rasi, Dist. Pali	3000
Kushkhera, Dist. Alwar (G)	1200
Shriram Cement Works, Kota	400

(Contd.)

Table - 80(Contd.)

Industry/plant	Capacity ('000 tpy)
Chemical	
DCM Shriram Industries Ltd, Kota	8.5 (Rayon/yarn) 7.7 (Sodium Sulphate)
Modi Alkalies & Chemicals Ltd, Alwar	84.2 (Caustic Soda) 50.3 (Cl) 39.6 (HCl)
Ceramics	
Bikaner Ceramics Pvt. Ltd, Bikaner	2.2
Kajaria Ceramics Ltd, Bhiwadi	16.7 (million sq m)
Fertilizer	
Chambal Fertilizer & Chemical Ltd, Gadepan, Dist. Kota	1729.2 (Urea)
Khaitan Chemical & Fertilizers Ltd, Dhinwa, Dist. Chittorgarh	200 (SSP)
Shriram Fertilizers & Chemicals Ltd, Shriramnagar, Dist. Kota	330 (Urea) 113.8 (Caustic Soda) 13.2 (Bleaching powder) 61.2 (HCl) 61.2 (Cl)
Plaster of Paris	
Abhishak Plaster Industries, Baramsar, Dist. Hanumangarh	6.1
Agrawal Industries, Nohar, Dist. Hanumangarh	6.3
Balaji Plaster Industries, Taranagar, Dist. Churu	6
Balaji Industries, Taranagar, Dist. Churu	6.5
Ganesh Plaster Industries, Taranagar, Dist. Churu	6
Gil Brothers, Taranagar, Dist. Churu	7.1
Hind Plaster Industries, Taranagar, Dist. Churu	6
Jaishri Plaster Industries, Taranagar, Dist. Churu	6.3
Jagdamba Plaster Industries, Rawatsav, Dist. Hanumangarh	7

(Contd.)

Table - 80(Concl.)

Industry/plant	Capacity ('000 tpy)
Jai Bhavani Plaster Industries, Baramsar, Dist. Hanumangarh	6
Jai Sriram Plaster Industries, Taranagar, Dist. Churu	7.1
M.G. Plaster Pvt Ltd, Taranagar, Dist. Churu	6.2
Mahabir Plaster Industries, Taranagar, Dist. Churu	6
Multani Industries, Nohar, Dist. Hanumangarh	8.4
R.D. Plaster Industries, Nohar, Dist. Hanumangarh	8.4
Shalimar Plaster & Chemical Industries, Sardarshahar, Dist. Churu	14
Shri Lakshmi Gypsum, Chak, Dist. Hanumangarh	6
Shriram Plaster, Taranagar, Dist. Churu	6.3
SS Plaster Industries, Taranagar, Dist. Churu	6
Shiv Bhakti Industries, Nohar, Dist. Hanumangarh	8.4
Tiger Plaster, Sardarshahar, Dist. Churu	11
The Sardarshahar Plaster & Minerals, Sardarshahar, Dist. Churu	19.4
Updesh Industries Ltd, Chak, Dist. Hanumangarh	9
Copper Smelters	
HCL, KCC, Jhunjhunu	31(Cu cathode) 182 (H ₂ SO ₄)
Lead & Zinc Smelters	
HZL Zinc Smelter, Debari	80 (Zn)
HZL Lead-zinc Smelter, Chanderiya	85 (Pb) 445 (Zn) 0.76 (Cd)* 0.150 (Ag)* 2.1 (Cu cathode) 704 (H ₂ SO ₄)*

* Total for all smelters of HZL.

Mineral Resources

The important mineral resources of the State are **copper-lead-zinc** and **silver** reported in Bhotang, Rangpo and Dikchu in East Sikkim district. Occurrences of other minerals like **dolomite, quartzite** and **talcs/steatite/soapstone** in West Sikkim district; **limestone** in North Sikkim district and **marble** in East Sikkim and North Sikkim districts were also reported (Table - 81).

Production

No mineral production (except minor minerals) was reported in 2007-08. The production value of minor minerals was estimated at Rs. 91 lakhs for the year 2007-08 (Table-82).

The index of mineral production in Sikkim (base 1993-94=100) was 0.00 (due to no mineral production except minor minerals) in 2007-08 as against 175.70 in the previous year.

Mineral-based Industry

SMC, a joint venture of Government of Sikkim and Government of India, is engaged in development Bhotang polymetal ore deposit at Rangpo. SMC produces copper, lead and zinc concentrates after treatment of ores at its beneficiation plant at Rangpo. The copper concentrates are sold to HCL, Ghatsila and zinc concentrates to HZL, Visakhapatnam for processing. The trials carried out by HZL for the utilisation of SMC's lead concentrates have not been successful. The lead concentrates remained unsold due to high bismuth content and other impurities. A talc/silica powder unit is reported to be working in East Sikkim district. A ferro alloys plant, namely, Aakashy Ispat & Ferro Alloys Ltd with an installed capacity of 6,000 tpy is located at Mamring, South Sikkim district.

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Table – 81 : Reserves/Resources of Minerals as on 1.4.2005 : Sikkim

Mineral	Unit	Reserves			Remaining resources			Total resources (A+B)
		Probable		Total (A)	Measured STD331	Inferred STD333	Total (B)	
		STD121	STD122					
Copper								
Ore	'000 tonnes	448.49	63	511.49	300	150	450	961.49
Metal	'000 tonnes	7.77	0.91	8.68	8.47	4.23	12.7	21.38
Dolomite	'000 tonnes	-	-	-	-	2756	2756	2756
Lead-zinc								
Ore	'000 tonnes	435.85	63.78	499.63	300	150	450	949.63
Lead metal	'000 tonnes	6.9	1.68	8.58	-	-	-	8.58
Zinc metal	'000 tonnes	12.88	3.14	16.02	3	1.05	4.05	20.07
Limestone	'000 tonnes	-	-	-	-	2380	2380	2380
Marble	'000 tonnes	-	-	-	-	2382.08	2382.08	2382.08
Quartzite	'000 tonnes	-	1125	1125	-	15993.7	15993.7	17118.7
Silver								
Ore	tonne	435843	63780	499623	300000	150000	450000	949623
Metal	tonne	15.25	0.04	15.29	27.6	13.8	41.4	56.69
Talc-steatite-soapstone	'000 tonnes	-	60	60	-	-	-	60

Figures rounded off.

Table – 82 : Mineral Production in Sikkim, 2005-06 to 2007-08 (Excluding Atomic Minerals)

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		2		37258	1		13436	-		9050
Copper ore	tonne	-	5227	-	-	3365	-	-	-	-
Copper conc.	tonne	2	157	4038	1	134	4386	-	-	-
Minor minerals@		-	-	33220	-	-	9050	-	-	9050

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

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

TAMIL NADU

Mineral Resources

Tamil Nadu is the leading producer of garnet (abrasive), graphite, lignite, magnesite, lime kankar and dunite. The State accounts for the country's 81% lignite, 77% vermiculite, 70% dunite, 63% rutile, 52% molybdenum, 49% garnet, 33% ilmenite and 24% sillimanite resources.

Important minerals that are found to occur in the State are **bauxite** in Dindigul, Namakkal, Nilgiri & Salem districts; **dunite/pyroxenite** in Salem district; **felspar** in Coimbatore, Dindigul, Erode, Kanchipuram, Karur, Namakkal, Salem & Tiruchirapalli districts; **fireclay** in Cuddalore, Kanchipuram, Perambalur, Pudukottai, Sivaganga, Thiruvallur, Tiruchirapalli, Vellore & Villupuram districts; **garnet** in Ramanathapuram, Tiruchirapalli, Tiruvarur, Kanyakumari, Thanjavur, Tirunelveli & Kottabomman districts; **granite** in Dharmapuri, Erode, Kanchipuram, Madurai, P. Muthuramalingam, Salem, Thiruvannamalai, Tiruchirapalli, Tirunelveli, Vellore & Villupuram districts; **graphite** in Madurai, Ramnathapuram, Shivganga & Vellore districts; and **gypsum** in Coimbatore, Perambalur, Ramnathapuram, Tiruchirapalli Tirunelveli, Thoothukudi & Virudhunagar districts. Similarly, occurrences of minerals, such as, **lignite** deposits are located in Cuddalore Ariyalur, Thanjavur, Thiruvarur, Nagapattinam & Ramanathapuram districts; **limestone** in Coimbatore, Cuddalore, Dindigul, Kanchipuram, Karur, Madurai, Nagapattinam, Namakkal, Perambalur, Ramnathapuram, Salem, Thiruvallur, Tiruchirapalli, Tirunelveli, Vellore, Villupuram & Virudhunagar districts; **magnesite** in Coimbatore, Dharmapuri, Karur, Namakkal,

Nilgiri, Salem, Tiruchirapalli, Tirunelveli & Vellore districts; **quartz/silica sand** in Chengai-Anna, Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kanchipuram, Karur, Madurai, Namakkal, Periyar, Perambalur, Salem, Thiruvallur, Thiruvarur, Nagapattinam, Tiruchirapalli, Villupuram, Virudhunagar & Vellore districts; **talc/steatite/soapstone** in Coimbatore, Salem, Tiruchirapalli & Vellore districts; **titanium minerals** in Kanyakumari, Nagapattinam, Ramanathapuram, Thiruvallur, Tirunelveli & Thootukudi districts; **vermiculite** in Dharmapuri, Tiruchirapalli & Vellore districts; and **zircon** in Kanyakumari district have been established.

Other minerals that occur in the State are **apatite** in Dharmapuri & Vellore districts; **barytes** in Erode, Madurai, Perambalur, Tirunelveli & Vellore districts; **bentonite** in Chengai-Anna district; **calcite** in Salem district; **china clay** in Cuddalore, Dharmapuri, Kanchipuram, Nilgiri, Sivaganga, Thiruvallur, Thiruvannamalai, Tiruchirapalli & Villupuram districts; **chromite** in Coimbatore & Salem districts; **copper, lead-zinc** and **silver** in Villupuram district; **corundum** and **gold** in Dharmapuri district; **dolomite** in Salem & Tirunelveli districts; **emerald** in Coimbatore district; **iron ore (magnetite)** in Dharmapuri, Erode, Nilgiri, Salem, Thiruvannamalai, Tiruchirapalli & Villupuram districts; **kyanite** in Kanyakumari & Tirunelveli districts; **molybdenum** in Dharmapuri, Dindigul & Vellore districts; **pyrite** in Vellore district; **sillimanite** in Kanyakumari, Karur & Tirunelveli districts; **tungsten** in Madurai & Dindigul districts; and **wollastonite** in Dharmapuri & Tirunelveli districts (Tables - 83(A) and 83(B)).

Petroleum and natural gas deposits are located in Cauvery basin area.

Table – 83(A) : Reserves/Resources of Minerals as on 1.4.2005 : Tamil Nadu

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						
Apatite	tonne	-	-	-	-	-	-	-	-	240000	-	240000	240000	
Barytes	tonne	-	-	-	-	-	-	-	500	221919	-	222419	222419	
Bauxite	'000 tonnes	4029	-	1865	5894	-	1913	2140	10084	6814	-	20951	26845	
Bentonite	tonne	-	-	-	-	-	-	-	3725333	5818519	-	9543852	9543852	
Calcite	tonne	-	-	-	-	-	-	-	-	116632	-	116632	116632	
China clay	'000 tonnes	-	-	-	-	-	-	-	327	56570	-	56897	56897	
Chromite	'000 tonnes	-	-	-	-	-	-	-	-	276	-	282	282	
Copper														
Ore	'000 tonnes	-	-	-	-	-	-	-	200	590	-	790	790	
Metal	'000 tonnes	-	-	-	-	-	-	-	1.08	2.73	-	3.81	3.81	
Corundum	tonne	-	-	-	-	-	-	-	-	4000	-	4000	4000	
Dolomite	'000 tonnes	-	-	-	-	-	-	-	2010	135	-	2145	2145	
Dunite	'000 tonnes	7554	-	103640	111194	-	-	-	-	5773	-	5773	116967	
Felspar	tonne	3271850	31813	396498	3700161	-	39800	204524	69822	5447875	-	5780891	9481052	
Fireclay	'000 tonnes	7702	1813	2551	12066	-	1300	102	-	102133	-	103796	115862	
Garnet	tonne	6670662	-	387093	7057755	-	-	-	15000	1408995	19871019	21295014	28352769	
Gold														
Ore (primary)	tonne	-	-	-	-	-	-	-	-	67000	-	67000	67000	
Metal(primary)	tonne	-	-	-	-	-	-	-	-	1.00	-	1.00	1.00	
Granite (Dim. stone)	'000 cu m	-	9218	8472	17690	-	37920	-	-	503818	-	541745	559435	
Graphite	tonne	3118767	-	810450	3929217	-	39486	2486	647500	3266390	-	3984999	7914216	
Gypsum	'000 tonnes	369	125	1010	1505	-	369	5660	-	19540	10	25806	27311	
Iron ore (Magnetite)	'000 tonnes	-	-	-	-	-	-	-	107388	62000	226921	481876	481876	
Kyanite	tonne	-	-	-	-	-	-	-	167000	87676	-	254676	254676	

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(Contd.)

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Table - 83(A) (Concl.d.)

Mineral	Unit	Reserves										Total resources (A+B)						
		Proved					Remaining resources											
		Proved STD 111	Probable STD121	STD122	Total (A)	Feasibility STD211	Pre-feasibility STD221	STD222	Measured STD331	Indicated STD332	Inferred STD333		Reconnaissance STD334	Total (B)				
Lead-zinc																		
Ore	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	200	590	-	-	790	790
Lead metal	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	2.26	5.48	-	-	7.74	7.74
Zinc metal	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	11.76	24.76	-	-	36.52	36.52
Limestone	'000 tonnes	478504	60601	99259	638364	48	29715	25453	81462	20962	386416	-	81462	20962	-	-	544056	1182420
Magnesite	'000 tonnes	12055	6692	9682	28429	-	27	12	17	737	16294	-	17	737	-	-	17087	45516
Molybdenum																		
Ore	tonne	-	1500000	-	1500000	-	-	425180	36000	569304	5945348	1490000	36000	569304	-	-	8465832	9965832
Contained MoS ₂	tonne	-	1050	-	1050	-	-	127.55	83.00	287.00	3310.32	1043	83.00	287.00	-	-	4850.87	5900.87
Pyrite	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-	-	-	24	-	24	24
Quartz-																		
silica sand	'000 Tonnes	33910	433	6054	40397	-	4476	73	3387	95837	26828	-	3387	95837	-	-	130601	170998
Sillimanite	tonne	306190	-	561766	867956	-	4000	13525323	-	-	3529577	-	-	-	-	-	17058900	17926856
Silver																		
Ore	tonne	-	-	-	-	-	-	-	-	-	-	-	-	330000	-	-	790000	790000
Metal	tonne	-	-	-	-	-	-	-	-	-	-	-	-	15.87	26.68	-	42.55	42.55
Talc-steatite- soapstone	'000 tonnes	194	210	1618	2023	-	-	181	-	-	524	-	-	-	-	-	705	2727
Titanium minerals																		
*Ilmenite	tonne	1135649	-	2209232	3344881	-	-	-	70000	18029942	86579420	-	70000	18029942	-	-	104679362	108024243
*Rutile	tonne	80220	-	132553	212773	-	-	-	4460	1657205	6887274	-	4460	1657205	-	-	8548939	8761712
Leucoxene	tonne	18869	-	25625	44494	-	-	-	1994	-	-	-	1994	-	-	-	1994	46488
Tungsten																		
Ore	tonne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	250000	250000	250000
Contained WO ₃	tonne	-	-	-	-	-	-	-	-	-	-	-	-	-	-	50	50	50
Vermiculite	tonne	1534533	-	-	1534533	-	-	-	-	-	343051	-	-	-	-	-	343051	1877584
Wollastonite	tonne	-	-	-	-	-	-	-	-	-	3533	-	-	-	-	-	3533	3533
*Zircon	tonne	46540	-	175443	221983	-	-	-	-	-	-	-	-	-	-	-	-	221983

Figures rounded off.

The proved and indicated balance recoverable reserves of crude oil and natural gas in the State as on 1.4.2007 are 8.09 million tonnes and 28.72 billion cu m, respectively.

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

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Table – 83(B) : Reserves of Lignite as on 1.4.2007 : Tamil Nadu

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	2831.00	23387.42	5108.60	31327.02
Cuddalore (incl. parts of Puducherry)	2831.00	2530.74	1163.73	6525.47
Ariyalur	-	1168.00	481.07	1649.07
Thanjavur	-	2290.71	72.66	2363.37
Thanjavur & Thiruvarur	-	17248.06	3123.46	20371.52
Thanjavur & Nagapattinam	-	125.99	238.89	364.88
Ramanathapuram	-	23.92	28.79	52.71

*Source: Coal Directory of India, 2006-07.***Exploration & Development**

The details of exploration activities conducted by various agencies for lignite and other minerals during 2006-07 and 2007-08 are furnished in Tables - 84(A).

In 2006-07, ONGC conducted geo-physical survey and drilling for exploration of petroleum &

natural gas and discovered new prospects for gas, namely, Adichapuram in Thiruvarur district and BV-10 in Cuddalore district. In 2007-08, ONGC discovered new oil prospects, namely, Pallivaramangalam-5 and Kamalapuram-9 in Thiruvarur disitric and oil and gas prospepts namely Kali-7 in Nagapattinam district. Details of geo-physical survey and drilling are furnished in Table - 84(B).

Table – 84(A) : Details of Exploration Activities in Tamil Nadu, 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							
Gold							
Krishnagiri	Naripally area	-	-	-	-	-	Conducted detailed mapping, pitting, trenching and sampling. Analytical results indicated gold values ranging from 0.03 to 0.41 g/t.
Graphite							
Shivganga	Puvandi-Arasanur and Usilamapatti area	-	-	-	-	-	In Arasanur block presence of graphite mineralisation was proved for a strike length of 1 km. The average average width of the zone is about 12 m. A resource of 0.76 million tonnes of graphite (13% FC) has been estimated. In the Western extension of Arasanur block, a new block named Kiranur block was investigated but the results were not encouraging.
Iron Ore							
Namakkal	Valliapanpatti, Rajapalayam, Manipudur and Aniyapurampudur blocks	-	-	-	-	-	A resource of about 14.03 million tonnes of magnetite with Fe content of 31 to 37% has been assessed.
Lignite							
Ramanathapuram	Tiyanur sector	-	-	-	-	-	Three regional seams varying in thickness from 0.6 to 13.4 m was intersected within a depth range of 339.8 m and 407 m.

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Table - 84(A) (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Nagapattinam	Tirumangalam sector	-	-	-	-	-	About 4 to 5 lignite seams varying in thickness from 0.5 to 24.5 m was intersected within a depth range of 310 m and 458.3 m.
Limestone							
Cuddalore	Uchichimedu area	-	-	-	-	-	Limestone band extending for about 14 km in strike length was established. A resource of 33.74 million tonnes of cement grade limestone was assessed.
Platinum Group of Metals							
Coimbatore and Erode	Mettupalayam Ultramafic Complex	-	-	-	-	-	Four bands of chromiferous pyrosenites (the carrier of PGE mineralisation) have been traced over a strike length of 13 km between Solavanur-Kurumbapalayam and Mallanayakkampalayam. Trench samples from one band analysed PGE values ranging from 1.4 to 3.16 ppm.
Namakkal	Chettiyampalayam block	-	-	-	-	14	Six samples out of 14 have analysed high values of PGE ranging from 0.31 ppm to 1.78 ppm and the rest of samples analysed 0.29 to 1.02 ppm.
DGM							
Limestone							
Tirunelveli	N/v Illangulam, Parapadi and Irraipuvari	-	-	9	183.6	262	Chemical analysis of samples indicated CaO content varying from 10.81 to 52.15%. Work is in progress.
MECL							
Lignite							
Neyveli Lignite Field	Nachiyargudi	-	-	4	2249.0	-	Promotional drilling on behalf of Neyveli Lignite Corpn. was carried out.
	Thiruvavur	-	-	7	2658.0	-	
	Eastern part of Neyveli	-	-	2	460.0	-	
	Jayamkondam	-	-	107	12032.0	-	Contractual drilling on behalf of Neyveli Lignite Corpn. was carried out.
2007-08							
GSI							
Gold							
Tiruvannamalai	Near Polur	-	-	-	-	-	Samples collected and sent for analysis.
Graphite							
Shivganga	Arasanur and Usilampatti area	-	-	-	-	-	In a trench in Usilampatti west block, high grade graphite gneiss band of 1.9 m width was recorded and in Arasanur west block, two zones of low to high grade graphite mineralisation has been identified.

(Contd.)

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Table - 84(A) (Concl.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Iron Ore							
Tiruvanna- malai	Kelur and Chengam areas	-	-	-	-	-	A total of 9 BMQ bands having a cumulative strike length of about 10 km have been identified.
Lignite							
Ramanatha- puram	Bogalur block	-	-	-	-	-	Two regional seams varying in thickness from 0.5 to 10.9 m have been intersected within a depth range 316 m and 344 m.
Platinum Group of Metals							
Coimbatore and Erode	Mettupalayam Ultramafic Complex Solavanur-Karapaddi sector	-	-	-	-	-	Detailed mapping, trenching and sampling were conducted. Three metapyroxenite bands were delineated in the area.
Namakkal	Chettiyampalayam- Tasampalayam sector	-	-	-	-	-	A prominent mineralised zone was traced for about 900 m strike length
MECL Lignite							
Neyveli Lignite Field	Nachiyargudi block	-	-	17	7130.0	-	Promotional drilling on behalf of Ministry of Coal was carried out . It is inferred that substantial quantity of lignite reserves is available in this block.
	Jayamkondam block	-	-	132	16757.0	-	Contractual drilling on behalf of Neyveli Lignite Corpn. was carried out. About 1168 million tonnes of indicated category reserves were upgraded into proved category.

Table – 84(B) : Exploration for Petroleum & Natural Gas By ONGC, 2006-07 and 2007-08

Year	Seismic Survey		Drilling			
			Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07	-	1274.78	12	25380	6	14844
2007-08	-	1588.23	7	19629	6	19690

STATE REVIEWS

Production

The value of mineral production in Tamil Nadu at Rs. 3,007 crore in 2007-08 increased by 5.4% as compared to that in the previous year. The state contributed 2.6% in the total value of mineral production in the country during the year under review. The principal minerals produced in the state were lignite, petroleum (crude), natural gas (utilised), garnet, limestone and magnesite, which together accounted for 97.5% of the value of the minerals produced in the state in 2007-08. The state was the leading producer of lime kankar 99.5%, garnet (abrasive) 98.8%, dunite 77.9%, magnesite 72.4% and lignite 63.5% in national production of respective minerals. During the year under review, production in terms of quantity of

fireclay increased by 39.5%, dunite 38%, sulphur 22.4%, silica sand 20%, vermiculite 13%, magnesite 4.9%, natural gas (utilised) 3.5%, lignite 2.7% and limestone 2%. On the other hand, production of quartz declined by 12.2%, lime kankar 14.8%, petroleum (crude) 15.6% and graphite (r.o.m.) by 16.5%. The reason for fall in production was due to decline of reporting mines and lack of demand (Table-85).

The production value of minor minerals was estimated at Rs. 59 crore for the year 2007-08. The number of reporting mines were 156 in 2007-08 as against 177 in the previous year. The index of mineral production in Tamil Nadu (base 1993-94 = 100) was 196.20 in 2007-08 as against 194.80 in the previous year.

**Table – 85 : Mineral Production in Tamil Nadu, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

		(Value in Rs. '000)								
Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		173		24156959	177		28534706	156		30065910
Lignite	'000 tonnes	3	20435	16045153	3	21014	19197550	3	21586	20819266
Natural gas (utilised)	m cu m	-	906	2718000	-	1129	3612800	-	1169	3740800
Petroleum (crude)	'000 tonnes	-	385	2144450	-	353	1966210	-	298	1659860
Bauxite	tonne	5	303595	33865	3	340327	38110	3	342687	36663
Ball clay	tonne	1	6906	1036	1	7000	1582	1	8446	1909
Dunite	tonne	-	25725	7009	-	16472	3002	-	22731	10229
Felspar	tonne	-	2420	623	-	629	189	-	576	261
Fireclay	tonne	9	30309	2955	7	22502	3032	6	31391	5766
Garnet (abrasive)	tonne	48	656874	180897	47	853243	253317	48	863014	289493
Graphite (r.o.m.)	tonne	2	58530	14108	2	60536	19371	2	50543	16204
Gypsum	tonne	-	-	-	1	27950	6988	-	-	-
Limestone	'000 tonnes	69	15578	2014182	85	17000	2482406	70	17336	2514291
Lime kankar	tonne	1	289521	54140	1	392898	67578	1	334775	57581
Limeshell	tonne	-	-	-	1	45	27	-	-	-
Magnesite	tonne	7	275897	325150	6	170781	271899	5	179095	301549
Quartz	tonne	20	13584	7866	11	6640	7227	10	5828	6504
Silica sand	tonne	6	36332	13206	7	22679	9013	6	27206	10264
Talc/soapstone/ steatite	tonne	1	3200	480	1	2680	402	-	-	-
Sulphur*	tonne	-	43852	-	-	36721	-	-	44932	-
Vermiculite	tonne	1	1417	3153	1	1491	3317	1	1685	4584
Minor minerals@		-	-	590686	-	-	590686	-	-	590686

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

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

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

STATE REVIEWS

Mineral-based Industry

The important large and medium-scale mineral-based industries in organised sector in the State are given in Table - 86.

Table – 86 : Principal Mineral-based Industries in Tamil Nadu

Industry/plant	Capacity ('000 tpy)
Abrasives	
Carborandum Universal Ltd, Chennai	NA
Cutfast Abrasives Tools Pvt. Ltd, Chennai	NA
Aluminium	
MALCO, Mettur Dam	85 (Alumina) 40 (Aluminium)
Asbestos Products	
Hyderabad Industries Ltd, Kannigaiper	100.0
Ramco Industries Ltd, Arakkonam, Dist. North Arcot	NA
Tamil Nadu Asbestos, Alangulam, Dist. Virudhunagar	28.5
Tamil Nadu Asbestos (Pipes), Mayanur	30.0
Cement	
ACC Ltd, Madukkarai, Dist. Coimbatore	960
Chettinad Cement Corpn. Ltd, Karur, Dist. Dindigul	600
Chettinad Cement Corpn. Ltd, Karikalli Dist. Tiruchirapalli	1200
Dalmia Cements, Dalmiapuram, Dist. Trichirapalli	4020
Grasim South, Reddipalayam	1030
The India Cements Ltd, Sankarnagar, Dist. Tirunelveli	1550
The India Cements Ltd, Sankaridurg, Dist. Salem (G)	700
The India Cements Ltd, Dalavoi Trichy	1300
Ultra-Tech Cement Works, ARCW, Arakkonam (G)	1200

(Contd.)

Table - 86 (Contd.)

Industry/plant	Capacity ('000 tpy)
Madras Cements, R.S.Raja Nagar Dist. Virudhunagar	750
Madras Cements, Alathiyur	3120
Tamil Nadu Cements, Alangulam, Dist. Kamrajur	400
Tamil Nadu Cements, Ariyalur, Dist. Ariyalur	500
Ceramics	
Carborandum Universal Ltd, Hosur	NA
Parryware Glamourooms Pvt. Ltd, Ranipet Dist. Vellore	15
Murugappa Morgan Thermal Ceramics Ltd., Ranipet, Dist. Vellore	5.44
Neycer India Ltd, Vadalur, Dist. Cuddalore	9.0
Sharda Ceramics Pvt. Ltd, Ambattur, Chennai	NA
Spartek Ltd, Chennai	NA
Copper Smelter	
Sterlite Industries (I) Ltd, Thoothukudi	300 (Cu anode) 120 (Cu cathode) 90 (Wire rods) 1050 (H ₂ SO ₄)
Fertilizer	
CPFL, Muthugoundanpadur Dist. Coimbatore	60 (SSP) 30 (H ₂ SO ₄)
Coramandal Fertilizer Ltd, Ranipet Dist. Vellore	132 (SP) 33 (H ₂ SO ₄)
Coramandal Fertilizer Ltd, Ennore	41.20 (N ₂) 48.0 (P ₂ O ₅)
EID-Parry (I) Ltd, Ranipet Dist. Vellore	132.00 (Super) 33.00 (H ₂ SO ₄)
KICL, Ennore	82.00 (SSP) 41.00 (SAP)
Madras Fertilizer Ltd, Manali, Dist. Chengleput	486.7 (Urea) 840 (NPK)

(Contd.)

STATE REVIEWS

Table - 86 (Contd.)

Industry/plant	Capacity (^{'000 tpy})
Southern Petrochemical Industries Corpn. Ltd, Thoothukudi	512 (Urea) 606 (DAP) 2.56 (AlF ₃)
TAC-Thoothukudi	16.00(N ₂)
Chemicals	
Tanfac Industries Ltd, Cuddalore	17 (HF) 17 (AlF ₃)
Synthetic Rutile	
DCW Ltd, Sahupuram, Dist. Thoothukudi	42
Iron & Steel	
Salem Steel Plant (SAIL), Salem	320 (Saleable Steel)
Southern Iron & Steel Co. Ltd, Salem	180 (Pig iron) 300 (Saleable steel)
Sponge Iron	
Adhunik Metalics Ltd, Eguvarpalayam, Dist. Thiruvallur	60
Arshara Industries Ltd, Equvarpalayam, Dist. Thiruvallur	60
Kaushik Steel Industries Ltd, Pappen Kuppem Dist. Thiruvallur	60
Agni Steels Pvt Ltd, Olappalayam Road, Ingur, Dist. Erode	30
Refractory	
Shri Natraj Ceramic & Chemical Industries Ltd, Dalmiapuram, Dist. Tiruchirapalli	43.7
VRW Refractories, Vanagaram	21.6
DBM & Calcined Magnesite	
Badrinath Refractories, Salem	0.9 (DBM) 2 (Calcined)
	(Contd.)

Table - 86 (Concl.)

Industry/plant	Capacity (^{'000 tpy})
Burn Standard Co. Ltd, Salem	18 (Calcined magnesite) 54 (DBM) 48 (Refractory)
Carborandum Universal Ltd, Ranipet, Dist. Vellore	NA
Carborandum Universal Ltd, Pallikaranai	NA
Dalmia Magnesite Corpn., Chettichavadi Dist. Salem	125 (DBM)
Khaitan Hostambe Spinels, Salem	30 (DBM) 10 (Mg-Cr clinker)
Ramkrishna Magnesite Mines, Salem	3 (Calcined)
Salem Refractories, Salem	18 (DBM)
Tamil Nadu Magnesite Ltd, Kurumbapatty, Dist. Salem	19.5(Calcined Magnesite) 30(DBM)
Tata Refractories Ltd, Salem	25 (DBM) 2 (Calcined)
Tamil Nadu Products, Salem	3 (Calcined)
Pon Kumar Magnesite Ltd, Salem	26.5 (DBM)
Khaitan Hostambe Spinels Ltd, Salem	30 (DBM) 10 (Cr Magnesite)
Silicon Carbide	
Carborandum Universal Ltd, Tiruvottiyur	NA
Petroleum Refinery	
CPCL, Manali	9500
CPCL, Narimanam	1000
	(G) : Grinding unit.

TRIPURA

Mineral Resources

Natural gas is the most important mineral resource in Tripura located in the Assam Arakan Fold Belt (AAFB) basin. Other minerals of significance are glass sand, fireclay, shale and sand for building/construction (Table-87).

Exploration and Development

ONGC continued geo-physical survey and drilling to explore petroleum and natural gas in the State. In 2007-08, new gas findings were reported from Sundalbari and Kunjaban in West Tripura districts. Details of exploration activities conducted by ONGC during 2006-07 and 2007-08 are furnished in Table-88.

Production

The value of mineral production in 2007-08 at Rs. 103 crore increased by 2.7% as compared to the previous year. Natural gas (utilised) was the only mineral item produced in the state and its output increased by 2.7% (Table-89).

The production value of minor minerals was estimated at Rs. 55 lakh for the year 2007-08. The index of mineral production in Tripura (base 1993-94=100) was 523.53 during 2007-08 as against 509.80 in the previous year.

Mineral-based Industry

A 3,000 tpy lime-pozzolana mixture factory is reported at Kumarghat in North Tripura district. A 150 tpy glazed pottery unit of Tripura Khadi and Village Industrial Board was in operation at Anandnagar in Tripura (West) district.

Table – 87 : Reserves/Resources of Minerals as on 1.4.2005 : Tripura

Mineral	Unit	Total reserves (A)	Remaining resources			Total resources (A+B)
			Measured STD331	Inferred STD333	Total (B)	
Fireclay	'000 tonnes	-	1	369	370	370
Quartz-silica sand	'000 tonnes	-	326	164	490	490

Figures rounded off.

Resources of Petroleum crude and Natural gas in the State are included in Assam and are not available separately.

Table – 88 : Exploration for Petroleum & Natural Gas By ONGC, 2006-07 and 2007-08

Year	Seismic Survey		Drilling			
			Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07	31.55	139.07	1	8502	3	7815
2007-08	36.30	186.39	6	11230	1	2552

STATE REVIEWS

**Table – 89 : Mineral Production in Tripura, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		-	-	869018	-	-	1003907	-	-	1030787
Natural gas (utilised)	m cu m	-	480	864000	-	520	998400	-	534	1025280
Minor minerals@		-	-	5018	-	-	5507	-	-	5507

Note : The number of mines for natural gas (utilised) and minor minerals is not available.

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

UTTARAKHAND

Mineral Resources

Uttarakhand (formerly Uttaranchal) was carved out of Uttar Pradesh in November 2000. It has an area of 55,845 sq km. Important minerals occurring in the State are high grade **limestone** in Almora, Bageshwar, Dehradun, Nainital, Pauri-Garhwal, Pithoragarh & Tehri-Garhwal districts; **magnesite** and **steatite** in Almora, Bageshwar, Chamoli & Pithoragarh districts; and **tungsten** in Almora district.

Other minerals that occur in the State are **asbestos** in Chamoli district; **barytes** and **marble** in Dehradun district; **copper** in Almora, Dehradun & Pithoragarh districts; **dolomite** in Dehradun, Nainital and Tehri-Garhwal districts; **graphite** in Almora district; **gypsum** in Dehradun, Pauri-Garhwal & Tehri-Garhwal districts; **lead-zinc** and **silver** in Dehradun & Pithoragarh districts; and **rock phosphate** in Dehradun & Tehri-Garhwal districts (Table - 90).

Exploration and Development

During 2007-08, GSI conducted exploration for phosphorite in Dhalwala-Singtali area of Tehri-Garhwal district. Small lenticular bodies of

phosphorite mineralisation were noticed in the area. Analytical results showed P₂O₅ content varying from 3.2 to 11.35%.

Production

The value of mineral production in Uttarakhand at Rs. 64.5 crore in 2007-08 increased by 1.3% as compared to the value of previous year. Uttarakhand was the second leading producer of magnesite and talc/soapstone/steatite contributing 25.8% and 21.7%, respectively in the total output of the country. During the year under review, production of magnesite increased by 12.2% and that of talc/steatite/soapstone by 3.9% over the previous year (Table-91).

The production value of minor minerals was estimated at Rs. 48 crores for the year 2007-08. The number of reporting mines in Uttarakhand in 2007-08 was 35 as against 37 in the previous year. The index of mineral production in Uttarakhand (base 1993-94=100) was 28.74 in 2007-08 as against 29.30 in the previous year.

Mineral-based Industry

The important medium and large-scale mineral-based industries in organised sector in the State are given in Table - 92.

STATE REVIEWS

Table – 90 : Reserves/Resources of Minerals as on 1.4.2005 : Uttarakhand

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						
Asbestos	tonne	-	-	-	-	-	-	-	311	-	-	311	311	
Barytes	tonne	-	-	-	-	-	-	-	-	25000	-	25000	25000	
Copper														
Ore	'000 tonnes	-	-	-	-	-	-	3170	390	660	-	4220	4220	
Metal	'000 tonnes	-	-	-	-	-	-	53.45	1.44	5.15	-	60.04	60.04	
Dolomite	'000 tonnes	-	-	-	-	721	349	1946	981	199553	-	203550	203550	
Graphite	tonne	-	-	-	-	-	-	10700	-	-	-	10700	10700	
Gypsum	'000 tonnes	-	-	-	-	-	35	-	-	2012	-	2047	2047	
Lead-zinc														
Ore	'000 tonnes	-	-	-	-	-	1400	3170	390	660	-	5620	5620	
Lead metal	'000 tonnes	-	-	-	-	-	23.10	138.85	11.15	9.50	-	182.60	182.60	
Zinc metal	'000 tonnes	-	-	-	-	-	68.88	151.21	19.11	27.63	-	266.83	266.83	
Limestone	'000 tonnes	3945	540	2423	6907	-	91872	29486	173604	1181881	-	1532894	1539801	
Magnesite	'000 tonnes	7483	602	32497	40582	-	-	58902	58756	73037	-	190695	231277	
Marble	'000 tonnes	-	-	-	-	-	-	-	-	6000	-	6000	6000	
Phosphorite/Rock phosphate	tonne	3063503	-	1734370	4797873	-	-	2760000	890000	15730513	-	19380513	24178386	
Silver														
Ore	tonne	-	-	-	-	-	-	1600000	1790000	-	-	3390000	3390000	
Metal	tonne	-	-	-	-	-	-	134.00	4.59	-	-	138.59	138.59	
Talc-steatite- soapstone	'000 tonnes	38720	4861	19621	63202	5987	985	105	1524	24884	197	36604	99806	
Tungsten														
Ore	tonne	-	-	-	-	-	-	-	138000	-	-	520000	658000	
Contained WO ₃	tonne	-	-	-	-	-	-	-	25	-	-	680	705	

Figures rounded off.

STATE REVIEWS

**Table – 91 : Mineral Production in Uttarakhand, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		36		588996	37		636712	35		644852
Limestone	'000tonnes	-	20	1951	-	32	26996	-	-	-
Magnesite	tonne	2	56500	47000	2	56882	55041	2	63830	60603
Talc/soapstone/ steatite	tonne	34	131054	64891	35	172273	79521	33	178901	109095
Minor minerals@		-	-	475154	-	-	475154	-	-	475154

Note: The number of mines excludes minor minerals.

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

**Table - 92 : Principal Mineral-based
Industries in Uttarakhand**

Industry/plant	Capacity ('000 tpy)
DBM	
Almora Magnesite Ltd., Matela, Dist. Bageshwar	24
Himalayan Hostambe, Pithoragarh	20 (DBM) 3 (Calcined magnesite)
Magnesite & Minerals Ltd, Pithoragarh	45
Orissa Industries Ltd., Chandak, Pithoragarh	45
Glass	
Hindustan National Glass & Industries Ltd, Rishikesh	340 TPD

UTTAR PRADESH**Mineral Resources**

Important minerals occurring in the State are **coal** in Singrauli coalfields, Sonbhadra district; and **diaspore & pyrophyllite** in Hamirpur, Jhansi, Lalitpur and Mahoba districts. Naini area of Allahabad district contains high quality **silica sand**, an important source of glass sand, containing 98% SiO₂ and a very low Fe₂O₃. It is found in Shankargarh, Lohargarh in Allahabad district and also Bargarh in Banda district. It is also found in Aligarh and Chitrakoot districts.

Other minerals that occur in the State are **andalusite** and **calcite** in Mirzapur district; **bauxite** in Banda,

Varanasi & Lalitpur districts; **china clay & dolomite** in Banda and Sonbhadra districts; **felspar** in Jhansi district; **fireclay, limestone, potash & sillimanite** in Sonbhadra district; **ochre** in Banda district; **granite** in Banda, Hamirpur, Lalitpur & Mahoba districts; **iron ore (hematite)** and **rock phosphate** in Lalitpur district [Table - 93(A) and 93(B)].

Exploration & Development

Details of exploration activities conducted by GSI during 2006-07 and 2007-08 in the State are furnished in Table - 94.

Production

The value of mineral production in Uttar Pradesh at Rs. 3,112 crore in 2007-08 marginally decreased from that of the previous year. Coal alone accounted for 28.5% of the total value of mineral production in the state. Uttar Pradesh was the second leading producer of diaspore and had a share of 46.4% in the total production of the mineral in the country. Among the important minerals, production of diaspore, pyrophyllite and silica sand increased by 68.8%, 5.1% and 3%, respectively whereas a decrease in production was observed in coal (6.6%) and sulphur (16%) during the year under review (Table-95).

The production value of minor minerals was estimated at Rs. 2,221 crore for the year 2007-08. The number of reporting mines in Uttar Pradesh was 26 in the present and the previous year. The index of mineral production in Uttar Pradesh (base 1993-94 = 100) was 95.41 as against 102.20 in the previous year.

Table – 93(A) : Reserves/Resources of Minerals as on 1.4.2005 : Uttar Pradesh

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						
Andalusite	'000 tonnes	-	-	-	-	-	-	-	-	14450	-	14450	14450	
Bauxite	'000 tonnes	-	-	-	-	-	-	10390	500	8018	-	18908	18908	
Calcite	tonne	-	-	-	-	-	-	-	-	11000	-	11000	11000	
China clay	'000 tonnes	-	-	-	-	-	-	11600	3447	10018	-	25065	25065	
Diaspore	tonne	863566	24704	232479	1120749	-	-	545	-	538682	59317	598544	1719293	
Dolomite	'000 tonnes	-	17094	-	17094	-	-	3500	-	66230	-	69730	86824	
Felspar	tonne	-	-	-	-	-	-	-	-	200000	-	200000	200000	
Fireclay	'000 tonnes	-	-	-	-	-	-	-	-	3221	-	3221	3221	
Granite (Dim. stone)	'000 cu m	-	-	-	-	-	-	-	-	494819	-	494819	494819	
Iron ore (Hematite)	'000 tonnes	-	-	-	-	-	-	-	-	38000	-	38000	38000	
Limestone	'000 tonnes	-	106772	19060	125832	-	4800	142763	40000	185533	-	380146	505978	
Ochre	tonne	-	-	-	-	-	-	25000	35000	10000	-	70000	70000	
Potash million tonnes	-	-	-	-	-	-	-	-	0.13	189.62	0.30	190.05	190.05	
Pyrophyllite	tonne	1136361	150000	691889	1978250	-	-	378450	49808	885900	964831	2278989	4257239	
Quartz- silica sand	'000 tonnes	6095	18621	2275	26991	40	2248	652	6307	51421	-	63660	90651	
Phosphorite/Rock phosphate	tonne	-	432898	3118586	3551484	-	-	-	740000	21481960	-	2221960	25773444	
Sillimanite	tonne	-	-	-	-	-	-	2100000	9350000	-	-	11450000	11450000	

Figures rounded off.

STATE REVIEWS

Table – 93(B) : Reserves of Coal as on 1.4.2007 : Uttar Pradesh

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total/Singrauli	765.98	295.82	-	1061.80

*Source: Coal Directory of India, 2006-07.***Table - 94 : Details of Exploration Activities in Uttar 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							
Base Metal							
Sonbhadra	Munib-ki-Pahari area	-	-	-	-	-	Exploration was conducted by scout drilling.
Gold							
Jhansi	Around Babina	-	-	-	-	-	Detailed mapping and sampling were conducted.
Phosphorite							
Sonbhadra	Kangara area	-	-	-	-	-	Interbedded chert breccia, porcellanite and shale have been traced up to a strike length of 450 m with width varying from 12 to 17 m. Analytical results of bed rock samples showed 760 ppm to 5800 ppm P ₂ O ₅ .
Tungsten							
Sonbhadra	Around Wyndhamganj and Baghisoti areas	-	-	-	-	-	Around Baghisoti numerous quartz veins have been mapped and sampled.
2007-08							
GSI							
Platinum Group of Metals							
Lalitpur	Kakarwaha area	-	-	-	-	-	Preliminary search for PGM and associated minerals was conducted.

**Table – 95 : Mineral Production in Uttar 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	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		23		34022854	26		31461841	26		31116623
Coal	000 tonnes	4	15721	12637025	4	12228	9202181	5*	11426	8864062
Diaspore**	tonne	-	9432	8443	-	6149	5346	-	10381	9775
Pyrophyllite	tonne	6	24941	4061	6	21574	4427	8	22664	4494
Silica sand	tonne	13	193472	33023	16	178236	40055	13	183794	28460
Sulphur#	tonne	-	32201	-	-	37751	-	-	31673	-
Minor minerals@		-	-	21340302	-	-	22209832	-	-	22209832

*Note: The number of mines excludes minor minerals.*** Relates to coal mines as on 31.03.2008.**** Associated with pyrophyllite.**# Recovered as by-product from oil refinery.**@ Figures for earlier years have been repeated as estimates, wherever necessary, because of non-receipt of data.*

STATE REVIEWS

Mineral-based Industry

The important large and medium-scale mineral-based industries in organised sector in the State are given in Table - 96.

Table - 96 : Principal Mineral-based Industries in Uttar Pradesh

Industry/plant	Capacity ('000 tpy)
Abrasives	
John Oakey and Mohan Ltd, Gaziabad	NA
Aluminium	
Hindalco Industries Ltd, Renukoot	685 (Alumina) 345 (Aluminium)
Cement	
ACC Ltd., Tikaria, Dist. Sultanpur (G)	2000
Birla Cement, Raibareli (G)	630
Diamond Cement, Jhansi (G)	500
Jaypee Cement, Sadvakhurd (G)	600
Jaypee Cement, Churk, Dist. Sonbhadra	475
Jaypee Cement, Dalla, Dist. Sonbhadra	432
Jaypee Cement, Chunar, Dist. Sonbhadra (G)	1680
Jaypee Cement, Ayodhya, Dist. Faizabad (G)	1000
Ceramics	
BHEL, Porcelain Insulator Division, Sultanpur	NA
Kajaria Ceramics Ltd, Sikandrabad, Dist. Bulandshaar	9.7 (million sq m)
Orients Ceramics & Industry Ltd, Sikandrabad	95
UP Ceramics & Potteries Ltd, Gaziabad	4.8
Chemical	
Kanoriya Chemicals Ltd, Renukoot	48 (Caustic Soda)
Fertilizer	
Duncan Industries Ltd, Kanpur	722 (Urea)
IFFCO, Phulpur, Dist. Allahabad	1415.7 (Urea)
IFFCO, Aonla	795.40 (N ₂)
IGCL, Jagdishpur	397.70(N ₂)
Khaitan Chemical & Fertilizers Ltd, Gora Machia, Dist. Jhansi	132 (SSP) 52.8 (H ₂ SO ₄)
Khaitan Chemical & Fertilizers Ltd, Mulwar, Dist. Fatehpur	113.5 (SSP) 52.8 (H ₂ SO ₄)
Mahadeo Fertilizers Ltd, Fatehpur	115.00 (SSP) 595.00 (H ₂ SO ₄)
OCF, Shahajapur	397.70 (N ₂)
Tata Fertilizer Works, Babrala Dist. Badaun	864.6 (Urea)

(Contd.)

Table - 96 (Concl.)

Industry/plant	Capacity ('000 tpy)
Ferro Alloys	
Hindustan Ferro Alloys, Hamirpur	3.2
The India Thermit Corpn. Ltd, Kanpur	0.3
Iron & Steel	
Malvika Steel Ltd, Jagdishpur	511 (Pig iron) 600 (Saleable steel)
Glass	
Hind Lamps Ltd, Shikohabad	NA
Mohan Crystal Glass Works, Mohan Nagar Dist. Gaziabad	32.9
Universal Glass Co., Gaziabad	60
Petroleum Refinery	
IOCL, Mathura	8000

(G) : Grinding units.

WEST BENGAL

Mineral Resources

Important minerals occurring in the State are **apatite** in Purulia district; **coal** in Burdwan, Bankura, Birbhum, Darjeeling, Jalpaiguri and Purulia districts; **china clay** in 24-Parganas, Bankura, Birbhum, Burdwan, Hoogly, Midnapur and Purulia districts; and **fireclay** in Bankura, Birbhum, Burdwan and Purulia districts.

Other minerals that occur in the State are **barytes, copper, gold, kyanite, pyrite** and **titanium minerals** in Purulia district; **dolomite** in Jalpaiguri district; **felspar** in Bankura and Purulia districts; **granite** in Bankura, Birbhum and Purulia districts; **lead-zinc** in Darjeeling district; **limestone** in Bankura and Purulia districts; **manganese ore** and **sillimanite** in Midnapur district; **quartz/silica sand** in Bankura, Hoogly and Purulia districts; and **tungsten** and **vermiculite** in Bankura district (Tables - 97(A) and 97(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 - 98. ONGC continued geo-physical survey for petroleum and natural gas in the State. During 2006-07 and 2007-08, a total of 47.56 (3D-sq km) and 154.10 (3D-sq km), respectively, seismic data were acquired.

STATE REVIEWS

Table – 97(A) : Reserves/Resources of Minerals as on 1.4.2005 : West Bengal

Mineral	Unit	Reserves				Remaining resources				Total resources (A+B)		
		Proved STD111	Probable		Total (A)	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)	
			STD121	STD122								Pre-feasibility STD221
Apatite	tonne	6125946	-	-	6125946	-	120000	8845250	521175	666646	10153071	16279017
Barytes	tonne	-	-	-	-	-	-	433000	-	-	433000	433000
China clay	'000 tonnes	757	461	7173	8390	-	300	331935	79418	591	412281	420671
Copper	'000 tonnes	-	-	-	-	-	113	-	-	-	113	113
Ore	'000 tonnes	-	-	-	-	-	2.09	-	-	-	2.09	2.09
Metal	'000 tonnes	-	-	-	-	-	-	-	-	-	-	-
Dolomite	'000 tonnes	-	12528	48000	60528	-	-	73226	104275	-	177501	238029
Felspar	tonne	-	-	-	-	-	-	934370	133750	-	4501250	4501250
Fireclay	'000 tonnes	741	396	690	1827	432	344	-	10333	958	12067	13894
Gold												
Ore (primary)	tonne	-	-	-	-	-	-	-	-	1283333	1283333	1283333
Metal (primary)	tonne	-	-	-	-	-	-	-	-	124	124	124
Granite (Dim. stone)	'000 cu m	3658	-	-	3658	-	19827	1140	8802	-	29768	33426
Kyanite	tonne	-	-	-	-	-	-	-	26520	-	26520	26520
Lead-zinc												
Ore	'000 tonnes	-	-	-	-	-	-	3371	335	-	3706	3706
Lead metal	'000 tonnes	-	-	-	-	-	-	130.07	10	-	140.07	140.07
Zinc metal	'000 tonnes	-	-	-	-	-	-	130.42	13	-	143.42	143.42
Limestone	'000 tonnes	-	-	-	-	-	7104	15482	22120	-	44706	44706
Manganese ore	'000 tonnes	-	-	-	-	-	-	-	200	-	200	200
Pyrite	'000 tonnes	-	-	-	-	-	-	-	2500	-	2500	2500
Quartz-silica sand	'000 tonnes	239	11	912	1162	-	-	-	5203	-	5203	6365
Sillimanite	tonne	-	-	-	-	-	-	-	1653000	-	1653000	1653000
Titanium minerals												
*Ilmenite	tonne	-	-	-	-	-	-	-	2087000	-	2087000	2087000
*Rutile	tonne	-	-	-	-	-	-	-	192000	-	192000	192000
Tungsten Ore	tonne	-	-	-	-	-	173063	190739	400000	-	763802	763802
Contained WO ₃	tonne	-	-	-	-	-	450	80.84	1000	-	1530.84	1530.84
Vermiculite	tonne	-	-	-	-	-	-	490	5076	-	5566	5566

Figures rounded off.

* Please refer to Ilmenite & Rutile and Zircon Reviews for resources as per Department of Atomic Energy.

STATE REVIEWS

Table - 97(B) : Reserves of Coal as on 1.4.2007 : West Bengal

(In million tonnes)

Coalfield	Proved	Indicated	Inferred	Total
Total	11453.98	11810.16	5070.70	28334.84
Raniganj	11339.71	7738.93	4443.91	23522.55
Barjora	114.27	0	0	114.27
Birbhum	0	4071.23	611.79	4683.02
Darjeeling	0	0	15.00	15.00

*Source: Coal Directory of India, 2006-07.***Table - 98 : Details of Exploration Activities in West Bengal, 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							
Raniganj coalfield Birbhum dist	Nabasan block	-	-	-	-	-	Regional exploration revealed presence of seven coal seams of thickness ranging from 0.50 to 4.74 m occurring at depths between 290.8 and 343.19 m.
Birbhum coalfield Birbhum dist	Kapasdanga-Bharkata block	-	-	-	-	-	Four regional coal seam zones of varying thickness have been recorded at depths between 300 and 720 m.
Gold Bankura	Rudra area	-	-	-	-	-	Large-scale mapping and sampling were conducted. Two soil samples from Hansadungri analysed 0.04 to 0.10 g/t Au and three samples from Rajsoli analysed 0.03 to 0.04 g/t Au.
Iron Ore Bankura	Saltora-Mejia block	-	-	-	-	-	Geophysical survey for magnetite was carried out along 41 traverses covering 3.9 km strike length.
DMM							
Kyanite							
Purulia	Salboni-Icchadih	1:50,000	4	-	-	5	-
Pyrophyllite							
Purulia	Jinamanipur	1:50,000	10	-	-	5	-
Glass Sand							
Purulia	Kaliasota, Mahisnadi	1:50,000	4	-	-	5	-
Quartz and Felspar							
Purulia	Kultanr, Jambad etc.	-	-	-	-	-	Quartz and felspar occur as pegmatite bodies intruded in granitic country rock.
WBMDTC							
Coal							
Raniganj Coalfield Bankura	Trans-Damodar Sector	1:4,000	4	34	3696.75	140	A total of about 61.73 million tonnes of resources was estimated.
2007-08							
GSI							
Coal							
Raniganj coalfield Birbhum dist	Nabasan block	-	-	-	-	-	Eleven Regional Barakar coal seams of thickness varying from 0.65 to 8.35 m were recorded at depths between 558.35 and 657.5 m.

(Contd.)

STATE REVIEWS

Table - 98 (Concl'd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
Birbhum coalfield Birbhum dist	Kapasdanga- Bharkata block	-	-	-	-	-	Barakar coal seam zone (cumulative thickness 17.35 m) was intersected at depths between 600.10 and 646.60 m.
-do-	Mahallah area	-	-	-	-	-	Two lignite seams of thickness ranging from 2.05 to 3.45 m were recorded at depths between 174.30 and 184.60 m.
Gold Bankura	Rudra area	-	-	-	-	-	Analytical results of the soil samples from Hansadungri and Rajsol showed anomalous gold values ranging from 31 ppb to 0.26 g/t.
-do-	Tilkanali and Kelapathar	-	-	-	-	-	Analytical results are awaited.
DMM Iron Ore Bankura	Pathardihi	-	-	-	-	8	Approximately 650 m long and 20 to 60 m wide magnetite band was encountered near Pathardihi. Near Kansara, 80 m long and 15 to 30 m wide magnetite band was encountered.
Kaolin Birbhum	Makdumnagar	-	-	-	-	-	Four pits dug out revealed occurrences of kaolin.
Kyanite Purulia Icchadiah	Salboni-	1:12,500	6	-	-	14	Ten pits were dug out. Preparation of report is underway.
Pyrophyllite Purulia	Jinamanipur	1:12,500	1.1	-	-	7	Occurrences of pyrophyllite were observed for a strike length of 150 m.
Silica Minerals Purulia	Kaliasota, Mahisnadi	1:12,500	1	-	-	9	Thin bands of glass sand were found to occur sandwiched between sandstone layers.
-do-	Janipur	1:3,960	0.08	-	-	4	About 1.46 lakh tonnes of quartz resources were estimated.
-do-	Hirapur	-	-	-	-	12	Four test pits were dug out. Work is under progress.
Road Metal/Black Stone Purulia	Kankarkiary	1:3,960	1	-	-	-	One million tonnes of resources were estimated.
-do-	Kadam	1:3,960	4	-	-	-	About 5.49 million tonnes of resources were estimated.
MECL Coal Raniganj Coalfield	Kulti	-	-	-	9070.1	-	Contractual drilling on behalf of M/s WBMDTC was conducted.
WBMDTC Coal Raniganj Coalfield Bardwan	Kulti Coal block	1:5,000	3	11	9070	-	Exploration activities are in progress.

STATE REVIEWS

Production

The value of mineral production in West Bengal at Rs. 3,211 crore in 2007-08 decreased by 11% as compared to that of the previous year. The state accounted for about 2.8% of the value of mineral production in India during 2007-08. West Bengal continued to be the second leading producer of apatite accounting for 42% of the total production in the country during the year under review. Coal alone accounted for 95% of the value of mineral production in the state during 2007-08.

The production of fireclay decreased by 8.9% , kaolin 9.3%, coal 9.7%, sulphur 20%, apatite 50.6% and clay (others) by 79.8% over the previous year (Table-99).

The production value of minor minerals was estimated at Rs.146 crore for the year 2007-08. The number of reporting mines in West Bengal in 2007-08 was 113 as against 117 in the previous year. The index of mineral production in West Bengal (base 1993-94 =100) was 134.72 as against 149.30 in the previous year.

**Table – 99 : Mineral Production in West Bengal, 2005-06 to 2007-08
(Excluding Atomic Minerals)**

(Value in Rs. '000)

Mineral	Unit	2005-06			2006-07			2007-08 (p)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		116		33727658	117		36125034	113		32110605
Coal	000 tonnes	101	24475	32218922	102	24938	34616937	102*	22521	30606490
Apatite	tonnes	1	5154	9793	1	5744	10052	1	2838	4967
Clay (others)	tonnes	1	248	15	1	474	24	1	96	8
Fireclay	tonnes	7	71563	8325	8	62497	6351	5	56953	5812
Kaolin	tonnes	6	81250	35490	5	86166	36557	4	78154	38215
Sulphur#	tonnes	-	18970	-	-	21509	-	-	17204	-
Minor minerals@		-	-	1455113	-	-	1455113	-	-	1455113

Note : The number of mines excludes minor minerals.

** Relates to coal mines as on 31.03.2008.*

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

Important large and medium-scale mineral-based industries located in the State with their total installed capacities are given in Table - 100.

Table – 100 : Principal Mineral-based Industries in West Bengal

Industry/plant	Capacity ('000 tpy)
Asbestos Products	
Everest Building Products Ltd, Kolkata	NA
Ramco Industries Ltd, Haratara, Dist. Paschim Midnapur	NA
UAL Industries Ltd, Tungadhowa, Dist. West Midnapur	150
Abrasives	
Carborandum Universal Ltd, Gopalpur	NA
K.L.Thirani & Co. Ltd, Kolkata	NA
Cement	
Ambuja Eastern, Sankrail (G)	1000

(Contd.)

Table - 100 (Contd.)

Industry/plant	Capacity ('000 tpy)
Birla Corporation Ltd, Durgapur (G)	600
Damodar Cement, Purulia (G)	525
Ultra Tech Cement Works, Durgapur (G)	1000
Durga Hitech Cement (G)	1000
Ceramics	
Jayshree Insulators, Rishra	NA
WBCDC Ltd, Kolkata	0.18
Chemical	
Hindustan Heavy Chemicals Ltd, Khardah, Dist. 24-Pargana	14.8 (Caustic Soda) 6 (Cl) 9.8 (HCL) 4.5 (Feric Alum) 18.7 (H ₂ SO ₄)
Electrodes	
Graphite India Ltd, Kolkata	NA
Fertilizer	
Jay Shree Chemicals & Fertilizers Ltd, Khardah, Dist. 24-Pargana	159.72 (SSP) 62.70 (H ₂ SO ₄)

(Contd.)

STATE REVIEWS

Table - 100 (Concl'd.)

Industry/plant	Capacity (^{'000 tpy})
TCL-Haldia	121.5 (N ₂) 310.5 (P ₂ O ₅)
Glass	
Hindustan National Glass & Industries Ltd, Rishra	680 TPD
Iron & Steel	
Durgapur Steel Plant, SAIL, Durgapur	3070 (Sinter) 2000 (Pig iron) 1871 (Saleable steel)
IISCO Steel Plant, SAIL, Burnpur, Dist. Burdwan	900 (Pig iron) 540 (Steel ingot) 10.3 (Ammonium sulphate)
Alloy Steel Plant, SAIL, Durgapur	179 (Saleable Steel)
Pig Iron	
Electrosteel Castings Ltd, Khardah	110
Kajaria Iron Castings Ltd, Durgapur	110
Tata Metaliks Ltd, Kharagpur	90
Sponge Iron	
Adhunik Corporation Ltd, Durgapur	60
Aryavrata Trading Pvt. Ltd, Lohameya Dist. Paschim Midnapur	36
Howrah Gasses Ltd, Raniganj, Dist. Burdwan	60
Jai Balaji Sponge Ltd, Raniganj, Dist. Burdwan	105
Rashmi Cement Ltd, Paschim Midnapur	60
Rashmi Ispat (Pvt) Ltd, Paschim Midnapur	60
Shyam Sel Ltd, Dewabdighi, Burdwan	100
Sunil Sponge Iron Ltd, Kolkata	115
Ferro-alloys	
Kartik Alloys Ltd, Durgapur	10.7
Maithan Alloys Ltd, Burdwan	12.5
Modern India Con-Cast Ltd, Bishnupur	22
Rohit Ferro-Tech Ltd, Bishnupur	55
Corporate Ispat Alloys Ltd, Durgapur	40
Modern India Cone Cost Ltd, Bishnupur	75
Shyam Ferro Alloys Ltd, Burdwan	100
Shri Vasavi Industries Ltd, Bishnupur Dist. Bankura	45
Refractory	
Alcoa-ACC Industrial Chemicals Ltd, Kalatalahat	10
Kero Rajendra Monolithics Ltd, Banjora	NA
Saswat International Ltd, Kulti, Dist. Burdwan	NA
Coke Oven Batteries	
IISCO Burnpur Works, Burnpur, Dist. Burdwan	1084
Petroleum Refinery	
IOCL, Haldia	6000

(G) : Grinding units.

UNION TERRITORIES**ANDAMAN & NICOBAR ISLANDS**

Occurrences of chromite, diatomaceous earth, gold, limestone, nickel, selenite and sulphur are reported in the Territory. No mineral production (except minor minerals) was reported from Andaman & Nicobar Islands during 2007-08. The production value of minor minerals was estimated at Rs. 23 crores in 2007-08.

CHANDIGARH

No mineral production was reported from Chandigarh in 2007-08. The production value of minor minerals in Chandigarh was estimated at Rs. 36 lakh for the year 2007-08. The capacity of ingots/billets in respect of electric arc furnace units is 36,700 tpy. There are cold-rolling mills and wire drawing units.

DADRA & NAGAR HAVELI

Production of minerals was not reported in 2005-06 and 2006-07. Important large and medium-scale mineral-based industries located in the State with their total installed capacities are given in Table - 101.

Table - 101 : Principal Mineral-based Industries in Dadra & Nagar Haveli

Industry/plant	Capacity (^{'000 tpy})
Aluminium	
Hindalco Industries Ltd, Silvassa	5 (Al foil) 300,000 (No. wheels)
Asbestos Products	
Ramco Industries Ltd, Golanda, Silvassa	NA
Copper	
Sterlite Industries (India) Ltd, Chinchpada, Silvassa	180 (Copper cathode) 150 (CC Copper rod)
Alloy	
Hindustan Alloys Mfg. Co Ltd, (HAMCO), Silvassa	3 (Tin ingot) 38 (Al alloy ingot) 2.8 (Sn-Pb solder wire)

STATE REVIEWS

DAMAN & DIU

Only Diu Island of the Territory contains limestone. The limestone mining, however, is carried out only as a minor mineral. In Daman, basalt is quarried for building and other purposes (Table - 102).

No mineral production (except minor minerals) was reported from Daman & Diu during 2007-08. The value of production of minor minerals was estimated at Rs. 5.9 lakh in 2007-08.

Rohit Pulp and Paper Mills Ltd set up a secondary lead and lead alloys plant at Daman, having a licensed capacity of 6,000 tpy and secondary tin plant with 1,000 tpy.

LAKSHADWEEP

Occurrences of limestone/limeshell have been reported in the Union Territory but mineral production is yet to commence.

PUDUCHERRY

Occurrences of **limestone** along the borders of South Arcot district of Tamil Nadu have been reported. Other mineral occurrences in the Union

Territory are **kaolin** in Karaikal and Puducherry areas; and **lignite** in Bahur area. Lignite reserves in Bahur and west of Bahur area of Puducherry as on 1.1.2006 are estimated at 416.61 million tonnes (Table - 103).

No mineral production (except minor minerals) was reported during the year 2007-08 from Puducherry. The production value of minor minerals was estimated at Rs. 52 lakh for the year 2007-08.

There is a 6,000 tpy capacity ordinary portland cement producing plant belonging to Polson Ltd. Four calcium carbide producing units exist with a total capacity of 6,250 tpy and a caustic soda and hydrochloric acid plant having 14,380 tpy and 14,290 tpy capacity, respectively. There are also three small-scale units producing ferro-silicon with a total capacity of 8,000 tpy. There is a unit manufacturing special porcelain, refractories and insulators. Three units are engaged in chalk manufacture by using gypsum and one insecticide unit using soapstone. There are a number of granite cutting and polishing units. A couple of units are also coming up in the Territory to manufacture glazed and unglazed tiles and steel ingots. Three EAF units (mini steel plants) with a total installed capacity of 197,000 tpy belonging to East Coast Steel Ltd., Sumangala Steel (P) Ltd and The Indian Steel Rolling Mills Ltd are in existence (Table - 104).

Table – 102 : Reserves/Resources of Minerals as on 1.4.2005 : Daman & Diu

Mineral	Unit	Total reserves (A)	Remaining resources			Total resources (A+B)
			Pre-feasibility STD221	Measured STD331	Total (B)	
Limestone	'000 tonnes	-	48840	79830	128670	128670

Figures rounded off.

Table – 103 : Reserves/Resources of Minerals as on 1.4.2005 : Puducherry

Mineral	Unit	Total reserves (A)	Remaining resources				Total resources (A+B)
			Pre-feasibility STD221	Measured STD331	Inferred STD333	Total (B)	
China clay	'000 tonnes	-	-	-	2940	2940	2940
Limestone	'000 tonnes	-	4333	4433	6966	15732	15732

Figures rounded off.

Table - 104 : Principal Mineral-based Industries in Puducherry

Industry/plant	Capacity ('000 tpy)
Ceramics	
Regency Ceramics Ltd, Yanam	150
H&R Johnson (India) Ltd, Karaikal	24.2
Ferro Alloys	
The Silcal Metallurgic Ltd	12.4
VSK Ferro Alloys Ltd, Tuthipet	3
Snam Alloys Pvt. Ltd, Kariamanikam	4
Glass	
Hindustan National Glass & Industries Ltd, Puducherry	350 TPD

OFFSHORE REGION

The Government of India notified the Offshore Areas Minerals (Development & Regulation) Act, 2002 (OAMDR Act), No. 17 of 2003 in the Gazette of India, Extraordinary, Part-II, Section-1, No. 17, dated 31.1.2003. The purpose of the Act is to provide for development and regulation of mineral resources in the territorial waters, continental shelf, Exclusive Economic Zone and other maritime zones of India and to provide for matters connected therewith or incidental thereto. The Act is applicable to all minerals in offshore areas including minerals prescribed under Atomic Energy Act, 1962, but excludes oils and related hydrocarbons as there is separate legislation for them in force. The Act is to come in to effect on a date to be notified by the Central Government.

The Act makes it mandatory to undertake reconnaissance, exploration or production operation in the offshore areas in accordance with the prescribed terms and conditions for reconnaissance permit (RP), exploration licence (EL) or production lease (PL) granted under the Act and the rules made thereunder. The availability of the areas for grant of RP, EL or PL shall be notified within six months from the commencement of the Act, and subsequently at such times as considered necessary. The Act empowers the Central Government to make rules for the purpose of the Act including terms and conditions under the RP, EL, PL, etc. The Rules, namely, the Offshore Areas Mineral Concession Rules, 2006 have been framed and notified on 3.11.2006 by G.S.R.691(E) published in the Gazette of India,

Extraordinary, Part II, Section 3(i), No.539 dated 4.11.2006. The Rules shall come in to effect on the date on which the Offshore Areas Mineral (Development and Regulation) Act, 2002 shall come into force.

The Government of India had announced the New Exploration Licensing Policy (NELP) in 2000 under which blocks for exploration of oil and gas were on offer for bidding. The NELP provides an international class fiscal and contract framework for exploration and production of hydrocarbons. A total of 162 Blocks have been signed for contract in six rounds of NELP during the period, spanning 2000-2007. The investment for exploration in the three phases for 162 blocks is about Rs.45,000 crore which is expected to go up substantially with discoveries of hydrocarbons. In the NELP-VII round, a total 57 blocks were put on offer by the Government inviting bids by 25 April 2008. The blocks include 28 offshore blocks of which 19 are in deep water and 9 in shallow water. Fifteen deepwater exploration blocks are in western offshore areas, three in eastern offshore areas and one in Andaman-Nicobar basin. Six shallow water blocks are in Mumbai basin in western offshore and three in KG basin in eastern offshore. Of these 57 blocks, 44 have been awarded. Under the latest round (NELP-VIII), 70 exploration blocks have been offered, of which 52 are in offshore share (28 shallow water and 24 deep water). The bids are to be submitted by 10 August, 2009.

Resources

Deposits of hydrocarbons are located in the offshore areas in the Mumbai offshore and Cambay basin on the west coast and Cauvery and Krishna-Godavari basins on the east coast. The resources of hydrocarbons in offshore areas are furnished in Table-105. The reserves of crude oil and natural gas in offshore areas accounted for 53% and 69% of total reserves, respectively, in India.

Table - 105 : Reserves of Crude Oil & Natural Gas in Indian Offshore Areas (As on 1.4.2007)

Area	(Crude oil in million tonnes) (Natural Gas in billion cu m)	
	Crude oil	Natural gas
Offshore : Total	447.51	788.48
Western Offshore	420.65	369.36
Eastern offshore	26.86	419.12

Source : Indian Petroleum & Natural Gas Statistics 2006-07, Ministry of Petroleum & Natural Gas.

STATE REVIEWS

Exploration & Development

GSI's Marine Wing carried out offshore geo-scientific studies both in Exclusive Economic Zone (EEZ) and Territorial Water (TW) along the East and West coasts of India. Survey in the near shore zones (00 m - 10 m isobaths) were carried out using hired small mechanical boats.

During 2006-07, three cruises aboard R.V. Samudra Manthan both within and beyond EEZ; six cruises aboard R.V. Samudra Kaustubh within the TW off the east coast and six cruises aboard R. V. Samudra Saudikama within the TW of the west coast were undertaken.

During 2007-08, no cruise could be under taken on board R. V. Samudra Manthan due to major overhauling of the ship. However, eight cruises were launched in the Territorial Waters by the R.V. Samudra Kaustubh coastal research vessel and seven cruises aboard R. V. Samudra Saudikama within the TW of the west coast were under taken. Till FS 2007-08, GSI completed seabed mapping of 123941 sq km within TW and 1848318 sq km in the EEZ beyond Territorial Waters.

The ONGC continued offshore seismic surveys in basins of Mumbai, Kerala-Konkan, Kachchh, Saurashtra on West Coast offshore and Krishna-Godavari, Cauvery, Mahanadi and Bengal basins on East Coast offshore.

Details of exploration activities conducted by ONGC during 2006-07 and 2007-08 are furnished in Table - 106.

During 2006-07, ONGC discovered one oil and gas prospect in Western Offshore, two gas prospects in KG Offshore, one gas prospect in Mahanadi Offshore and one oil prospect in Mumbai Offshore region. During 2007-08, one oil and gas prospect in KG Offshore, two gas prospects each in KG Offshore and Mahanadi Offshore and one oil & five gas prospects in Mumbai Offshore region were discovered.

Production

Petroleum (crude) and natural gas (utilised) are the only mineral items produced from offshore areas. The value of these two items in 2007-08 at Rs. 20,178 crore increased by 1.8% from Rs. 19,814 crore in the previous year. Offshore region accounted for 17.6% of total value of mineral production in India (Table-107).

The production of natural gas (utilised) increased by 3.2% over previous year while petroleum (crude) showed an increase of about 1.1%. Offshore region accounted for 67.1% production of petroleum (crude) and 71.9% of natural gas (utilised) in the country during 2007-08. The index of mineral production of offshore region (base 1993-94=100) in 2007-08 was 160.74 as against 157.80 in the previous year.

Table – 106 : Exploration for Petroleum & Natural Gas By ONGC, 2006-07 and 2007-08

Year	Seismic Survey		Drilling			
			Exploratory		Development	
	2D(GLKM)	3D(SQKM)	Wells	Meterage	Wells	Meterage
2006-07						
Western Offshore	341.25	7120.94	12	31364	43	123538
Eastern Offshore	8171.70	13301.04	10	45104	1	1956
2007-08						
Western Offshore	5253.88	4054.86	17	49906	60	172713
Eastern Offshore	1907.35	10815.06	11	34407	1	939

Table – 107 : Mineral Production in Offshore, 2005-06 to 2007-08 (Excluding Atomic Minerals)

Mineral	Unit	(Value in Rs. '000)					
		2005-06		2006-07		2007-08 (p)	
		Quantity	Value	Quantity	Value	Quantity	Value
All Minerals			183505200		198135370		201783280
Natural gas (utilised)	m cu m	22624	67872000	22473	71913600	23190	74208000
Petroleum (crude)	'000 tonnes	20760	115633200	22661	126221770	22904	127575280