

STATE REVIEWS



Indian Minerals Yearbook 2014 (Part- I)

53rd Edition

**STATE REVIEWS
(Tamil Nadu)**

(ADVANCE RELEASE)

**GOVERNMENT OF INDIA
MINISTRY OF MINES
INDIAN BUREAU OF MINES**

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TAMIL NADU

Mineral Resources

Tamil Nadu is the leading holder of country's resources of vermiculite, magnetite, dunite, rutile, garnet, molybdenum and ilmenite. The State accounts for the country's 75% vermiculite, 63% dunite, 59% garnet, 52% molybdenum and 30% titanium mineral resources.

Important minerals that are found to occur in the State are: **bauxite** in Dindigul, Namakkal, Nilgiris & 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 districts; **granite** in Dharmapuri, Erode, Kanchipuram, Madurai, Salem, Thiruvannamalai, Tiruchirapalli, Tirunelveli, Vellore & Villupuram districts; **graphite** in Madurai, Ramanathapuram, Sivaganga & Vellore districts; and **gypsum** in Coimbatore, Perambalur, Ramanathapuram, Tiruchirapalli, Tirunelveli, Thoothukudi & Virudhunagar districts. Similarly, occurrences of minerals, such as, **lignite** deposits are located in Cuddalore, Ariyalur, Thanjavur, Thiruvarur, Nagapattinam, Ramnad, Shivganga & Ramanathapuram districts; **limestone** in Coimbatore, Cuddalore, Dindigul, Kanchipuram, Karur, Madurai, Nagapattinam, Namakkal, Perambalur, Ramanathapuram, Salem, Thiruvallur, Tiruchirapalli, Tirunelveli, Vellore, Villupuram & Virudhunagar districts; **magnesite** in Coimbatore, Dharmapuri, Karur, Namakkal, Nilgiri, Salem, Tiruchirapalli, Tirunelveli & Vellore districts; **quartz/silica sand** in 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 & Thoothukudi 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, Nilgiris, Sivaganga, Thiruvallur, Tiruvannamalai, 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, Nilgiris, 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 (Table-1). District-wise reserves/resources of lignite are provided in Table-2.

In addition to the above, Petroleum and natural gas deposits are found to be located in Cauvery basin area.

Table – 1 : Reserves/Resources of Minerals as on 1.4.2010 : Tamil Nadu

Mineral	Unit	Reserves				Remaining resources				Total resources (A+B)			
		Proved STD 111		Probable (A)		Feasibility STD211		Pre-feasibility (B)					
		STD121	STD122	STD121	STD122	STD211	STD222	STD331	Indicated STD332		Inferred STD333	Reconnaissance STD334	Total (B)
Apatite	tonne	-	-	-	-	-	-	-	-	240000	-	240000	240000
Barytes	tonne	-	-	-	-	-	-	500	500	221919	-	222419	222419
Bauxite	'000 tonnes	708	-	708	-	1141	3564	960	10084	8363	-	24112	24820
Bentonite	tonne	-	-	-	-	-	-	-	3725333	5818519	-	9543852	9543852
Calcite	tonne	-	-	-	-	-	-	-	-	116632	-	116632	116632
China clay	'000 tonnes	-	-	-	-	-	-	-	327	56570	-	56897	56897
Chromite	'000 tonnes	-	-	-	-	-	-	7	-	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	7466	-	1450	8916	-	-	-	-	5773	-	107963	116879
Felspar	tonne	613184	6450	31302	650936	2328227	70156	18870	69822	5447875	-	8351111	9002047
Fireclay	'000 tonnes	322	3269	423	4014	4833	171	1561	-	102069	-	110244	114258
Garnet	tonne	334469	1511397	10595388	12441254	-	-	15000	1408995	19871019	-	21387065	33828319
Gold													
Ore (primary)	tonne	-	-	-	-	-	-	-	-	67000	-	67000	67000
Metal(primary)	tonne	-	-	-	-	-	-	-	-	1.00	-	1.00	1.00
Granite													
(Dim. stone)	'000 cu m	-	1448	238	1686	-	45690	7	-	503818	-	557749	559435
Graphite	tonne	2807113	-	810450	3617563	-	39486	65330	647500	3866390	-	4621193	8238756
Gypsum	'000 tonnes	-	-	64	64	313	469	25	249	19540	10	27191	27255
Iron ore													
(Magnetite)	'000 tonnes	-	-	-	-	-	-	-	169388	110728	226921	507037	507037
Kyanite	tonne	-	-	-	-	-	-	-	167000	81359	-	248359	248359

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Table - I(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						
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	199243	115705	55165	370112	19229	55984	69951	32169	460412	-	-	679759	1049871
Magnesite	'000 tonnes	12462	5968	7474	25904	997	27	17	737	12355	-	-	14608	40511
Molybdenum														
Ore	tonne	-	-	-	-	-	1500000	36000	569304	7692728	167800	9965832	9965832	9965832
Contained MoS ₂	tonne	-	-	-	-	-	1050	83.00	287.00	4430.53	50.34	5900.87	5900.87	5900.87
Pyrite	'000 tonnes	-	-	-	-	-	-	-	-	24	-	-	24	24
Quartz-														
silica sand	'000 Tonnes	60063	9	93	60166	29644	4892	3387	95837	27150	-	168432	228598	228598
Sillimanite	tonne	331800	-	561766	893566	-	4000	-	-	3529577	-	17058900	17952466	17952466
Silver														
Ore	tonne	-	-	-	-	-	-	-	330000	460000	-	-	790000	790000
Metal	tonne	-	-	-	-	-	-	-	15.87	26.68	-	-	42.55	42.55
Talc-steatite/ soapstone	'000 tonnes	-	-	333	333	194	210	-	-	524	-	-	2328	2661
Titanium minerals*														
tonne	1181486	-	2367410	3548896	-	-	-	76454	19687147	93466694	-	113230295	116779191	116779191
Tungsten														
Ore	tonne	-	-	-	-	-	-	-	-	-	-	250000	250000	250000
Contained WO ₃	tonne	-	-	-	-	-	-	-	-	-	-	50	50	50
Vermiculite	tonne	1526417	-	-	1526417	-	-	-	-	343051	-	-	343051	1869468
Wollastonite	tonne	-	-	-	-	-	-	-	-	3533	-	-	3533	3533
Zircon*	tonne	53318	-	175443	228761	-	-	-	-	-	-	-	-	228761

Figures rounded off.

The proved and indicated balance recoverable reserves of crude oil and natural gas in the State as on 1.4.2014 are 9.12 million tonnes and 44.92 billion cu m, respectively.

* Resources as per Department of Atomic Energy are provided in the respective Mineral Reviews.

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Table – 2 : Reserves/Resources of Lignite as on 1.4.2014 : Tamil Nadu

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	3735.23	22900.05	7712.43	34347.71
Cuddalore	2831.00	2530.74	1199.78	6561.52
Ariyalur	904.23	302.50	481.07	1687.80
Thanjavur	-	2290.71	72.66	2363.37
Thanjavur & Thiruvarur	-	17248.06	3123.46	20371.52
Thanjavur & Nagapattinam	-	359.21	534.19	893.40
Thiruvarur & Nagapattinam	-	-	574.05	574.05
Ramanathapuram	-	168.83	742.01	910.84
Ramnad	-	-	964.97	964.97
Ramnad & Sivaganga	-	-	20.24	20.24

Source: Coal Directory of India, 2013-14.

Exploration & Development

The details of exploration activities conducted by GSI & various agencies for lignite and other minerals during 2013-14 are furnished in Table - 3.

During 2013-14, ONGC carried out seismic surveys and acquired 170 SQKM of 3D seismic data in the onland area. A total of 11 exploratory wells with a meterage of 36,955 and 10 development wells with a meterage of 21,260 have been drilled.

Production

The value of mineral production in Tamil Nadu at ₹ 6,689 crore in 2013-14 increased by 8% as compared to that in the previous year. The state contributed about 2% to the total value of mineral production in the country. The principal minerals produced in the state were lignite, natural gas (utilised), limestone, petroleum (crude), magnesite, garnet (abrasive), dunite, graphite (r.o.m.) and bauxite which together accounted for about 94% of the total value of the minerals produced in the state during 2013-14. The state was the sole

producer of lime kankar and leading producer of dunite (98%), garnet (abrasive) (78%), magnesite (74%), graphite (r.o.m.) (61%) and lignite (57%). It was also the second largest producer of fireclay (23%) and vermiculite (22%) in the country.

During the year under review, increase in production was observed in vermiculite (60%), felspar (36%), graphite (r.o.m.) (28%), fireclay (11%), natural gas (ut.) (8%), bauxite (6%), silica sand (5%) and lignite (1%). However, decrease in the production was reported in petroleum (crude) (5%), limestone (9%), magnesite (10%), dunite (19%), quartz (26%), limekankar (27%), garnet (abrasive) (46%), marl (62%) and ball clay (65%). (Table - 4).

The value of production of minor minerals was estimated at ₹ 409 crore for the year 2013-14.

The number of reporting mines was 355 in 2013-14 as against 368 in the previous year.

The index of mineral production in Tamil Nadu (base 2004-05 = 100) was 117.1 in 2013-14 as compared to 117.3 in the previous year.

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Table –3 : Details of Exploration Activities in Tamil Nadu, 2013-14

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI							
Lignite							
Ramanatha- puram	Uttarkosamangai sector, Ramnad sub-basin	-	-	12	3817.55	-	Promotional exploration under G-3 stage continued to delineate lignite-bearing areas and to assess the resource potentiality. A total of 3817.55 m was drilled in twelve boreholes RUL-13 to 24. Geophysical logging of 3240 m was conducted to demarcate the lignite zones. Three lignite seams varying in cumulative thickness from 5 m to 24.3 m were intersected between 175 m to 405 m depths within Neyveli Formation. The strike continuity of about 7 km and dip continuity of about 6.5 km has so far been established. Investigation is under progress.
PGE							
Namakkal	Tasampalaiyam Block in Sitam- pundi Complex	-	-	28	2916 (2012-13 & 2013-14)	163	Prospecting stage (G-3) investigation for Platinum Group of Elements was carried out in T ₁ and T ₂ sectors of Tasampalaiyam Block. The item was oriented to prove the depth persistence of the PGE mineralisation in the eastern part of Tasampalaiyam Block (T ₁ and T ₂ sectors) and to evaluate the resource potential of this block. The Sitampundi Anorthosite Complex (SAC) exposes hornblende anorthosite gneiss with bands and lenses of chromitite / chromiferous meta-pyroxenite, pyroxene granite and amphibolites within the Bhavani Gneissic Complex. A total of twenty-eight boreholes (TH-1 to TH-19, TPH-1 to TPH-9) were drilled in T ₁ & T ₂ Sector involving 2916 m of drilling (FS 2012-13 & 2013-14). A total of twelve first level boreholes (TH-1 to TH-12) and six second level boreholes (TPH-1 to TPH-6) were drilled in T ₁ sector and these boreholes have intersected bands/ layers of chromitite/ chromiferous meta-pyroxenite and sulphide-rich zones in anorthosite. 82 core samples collected from six boreholes (TH-7 to TH-12) were analysed and the following PGE mineralised zones were delineated. A total of seven I st level boreholes (TH-13 to TH-19) and three second level boreholes (TPH-7 to TPH-9) were drilled in T ₂ sector. 81 core samples collected from BH: TH-13, 17, 18 & 19 were analysed and following PGE mineralised zones were delineated in boreholes TH-13 & 17.

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Table - 3 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							Bore-hole No. Grade (Pt+Pd)/ Width (m) Lithology
							TH-7 Zone-I 0.40 ppm Chromitite (206+210)/0.52m Zone-II 0.28 ppm Chromitite (108+173)/0.61m Zone -III 0.52ppm Chromitite (202+324)/
							TH-8 Zone -I 0.46 ppm Chromitite (234+232) / 1.05m Zone-II 0.43 ppm Anorthosite (212+220)/1.30m with sulphide
							TH-9 Zone-II 0.52 ppm Chromitite (190+335)/0.40m
							TH-10 Zone-I 0.44 ppm Chromitite (212+220)/0.98m
							TH-12 Zone-I 0.93 ppm Chromitite (730+204)/0.55m Zone-II 0.66 ppm Chromitite (361+298)/0.35m Zone-III 0.67ppm Chromitite (364+305)/0.64m Zone-IV 1.73ppm Chromitite (718+1017)/0.83m
							TH-13 Zone-I 0.56 ppm Mix zone of (278+277)/1.30m chromitite+ anorthosite Zone-II 1.29 ppm Chromitite (464+822)/1.85m Zone -III 2.2 ppm Chromitite (903+1387)/1.75m Zone-IV 1.18 ppm Chromitite (903+1387)/0.75m
							TH-17 Zone -I 0.38 ppm Chromitite (263+117) / 0.60m Zone-II 0.48 ppm Mix zone of (223+261)/1.14m chromitite+ anorthosite Zone-III 0.33ppm Mix zone of 2135+190)/1.17m chromitite+ anorthosite
							Ore microscopic studies indicate presence of four major sulphide phases namely pyrite (FeS ₂), chalcopyrite (CuFeS ₂), pentlandite (NiS) and millerite (NiFeS). The SEM-EDX studies indicate the presence of native platinum, Pt telluride, Pd telluride, Pt+Pd telluride, Pd+Ni telluride, Pt+Pd+Ni telluride, Pd+Au+Ag telluride, Pd sulphide, Ru sulphide, Pt+Rh sulphide, Pt+Rh sulphide, Ru+Os sulphide, Ru+Ir sulphide, Ru+Ir+Os sulphide, Ru+Pt+Pd telluride and Pd+Au telluride.

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Table - 3 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
PGE							
Erode	Solavanur Block	-	-	7 (2 nd level)	1015.1	-	Prospecting stage (G-3) investigation for PGE was carried out in Mettupalaiyam mafic-ultramafic complex to systematically prove the persistence of the PGE-mineralised zone and to evaluate the PGE resource potential of this block. The Mettupalaiyam Ultramafic Complex (MUC) is characterised by a group of mafic/ultramafic rocks ranging in composition from dunite through peridotite, meta pyroxenite, amphibolite, garnetiferous gabbro, gabbroic anorthosite to anorthosite with or without chromite layers occurring as large enclaves within the Bhavani Gneissic complex. In 2013-14, a total of 1015.1 m drilling has been carried out in seven 2 nd level (60 m vertical depth) boreholes (SL-11 to SL-17). All the boreholes intersected meta-pyroxenite and chromiferous meta-pyroxenite. EPMA study reveals the presence of primary as well as secondary PGM's mainly associated with disseminated sulphides (bornite, pentlandite, chalcopyrite). The Primary PGM's are Ru-Os-Ir-Pd-Rh-Fe-S, Cu-Fe-Ni-Ag-Pd-S & Ni-Fe-Pd-Cu-S with Pd value ranging from 3.41% to 17.24%. The secondary PGMs were observed near grain boundaries of sulphides and are alloyed with bismuth tellurides as Pd-Bi-Te-Cu-Fe-S, Pd-Bi-Te, Ni-Fe-Cu-S-Pd-Bi-Te, Cu-Fe-Ni-S-Pd-Bi, Ag-Au-Pd-Pt-Cu-Fe-Bi-Te & Cu-Fe-Ni-S-Pd-Bi-Te. Eleven PGM alloy grains have been identified with grain size varying from 0.5 micrometres to 10 micrometres.
-do-	Solavanur Extension Block	-	-	-	-	-	Reconnaissance stage (G-4) investigation was carried out in Mettupalaiyam Mafic-Ultramafic Complex to prove the persistence of the PGE-mineralised zone in Solavanur Block and to trace PGE-mineralised meta pyroxenite bands in Solavanur Extension Block. The various lithounits exposed are gabbro and its variants, metapyroxenite with/without garnets belonging to the mafic-ultramafic differentiated sequence. The other lithounits found in the area are hornblende-biotite gneiss, dunite, younger pegmatites and quartz veins. Shearing of different intensities is observed in all the rock types. Twenty-

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Table - 3 (Contd.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							two discontinuous outcrops of metapyroxenite in the form of patches/ lenses/ thin linear bodies exposed at different levels have been delineated with width varying from 10 cm to a max width of 4 m. Analytical results of 2 petro-chemical samples from metapyroxenite show 3231 ppm and 2253 ppm of Cr and 918.9 and 797.9 ppm of Ni.
PGE							
Erode	Karattadipalaiyam- Gopichettpalaiyam- Dasampalaiyam sector	1:12500	120	-	-	387	Reconnaissance stage (G-4) investigation for Platinum Group of Element (PGE) was carried out in Mettupalaiyam Ultramafic Belt (MUB) with the objective to map all the ultramafic bodies within MUB and to assess the PGE potentiality. The lithounits exposed in the area are banded gneiss, biotite gneiss, hornblende-biotite gneiss (HBG), dunite, peridotite, pyroxenite, gabbro, tremolite- actinolite schist, charnockite, quartzite, amphibolites, K-felspar rich pegmatoids, granite and quartz veins. A total of nine lenses of ultramafic body have been delineated with size ranging from 60 m to 950 m length and 10 m to 90 m width. Out of these nine bodies, four major ultramafic bodies range in length from 150 m to 550 m and width 30 m to 97 m and five minor ultramafic bodies are less than 150 m length and 25 m width. Apart from these nine ultramafic bodies mapped, three ultramafic bodies viz. Sanarpalaiyam - Odathurai eri, Odathurai sluice and Perundalaiyur having 40 m to 400 m length and 2 m to 4.50 m width were delineated by trenching. In addition, 24 minor mafic lenses/bands of gabbroic composition ± garnet are also delineated.
RM/REE							
Namakkal and Tiruchira- palli	Parts of Paramathi- Sarkar Valavandi- Kavundanur areas	1:12500	78	-	-	80	Reconnaissance stage investigation (G-4) was carried out to locate potential zones of REE and associated minerals within pink granite/gneiss and pegmatite. The study area exposes calc-granulite, BMQ, pyroxene granulite, pink migmatitic gneiss, biotite gneiss, granite, granite gneiss, charnockite, hornblende-biotite gneiss, pyroxene gneiss, meta-pyroxenite, metagabbro and pegmatite and quartz veins. Analytical results of 20 BRS received so far out of which three nos. of samples collected from pink granite and pink migmatite yielded 914.89 ppm of "REE (La to Lu), 1359.59 ppm of "LREE (La to Sm) and 114.41 ppm of "HREE (Tb to Lu). The samples collected from pegmatite

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Table - 3 (Concl.d.)

Agency/ Mineral/ District	Location	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Metreage		
							bodies are not showing any encouraging values of REEs. XRD study reveals presence of almandine, apatite, allanite, ilmenite and epidote within granite and pegmatite.
Neyveli Lignite Corporation							
Lignite							
Thanjavur and Nagapattinam	Kallalangudi	-	-	42	13600	179	It is inferred that this block has got substantial lignite resources.
Cuddalore	East of Sethiathope block	-	-	35	14569	169	It is inferred that the block has got substantial lignite resources.
-do-	Vayalamur block	-	-	4	1862	9	Lignite has been encountered in two boreholes.

Table – 4: Mineral Production in Tamil Nadu, 2011-12 to 2013-14 (P)
(Excluding Atomic Minerals)

(Value in ₹ '000)

Mineral	Unit	2011-12			2012-13			2013-14 (P)		
		No. of mines	Qty	Value	No. of mines	Qty	Value	No. of mines	Qty	Value
All Minerals		305		60132244	368		61925152	355		66889896
Lignite	'000t	3	24590	36964800	3	24844	37346600	3	25056	41992100
Natural Gas (ut.)	m c m	-	1285	9243414	-	1206	9973774	-	1304	10784247
Petroleum(crude)	'000t	-	247	4487484	-	238	4325834	-	226	4107725
Bauxite	t	3	69078	17295	3	95442	30587	3	100896	49041
Ball Clay	t	1	4485	4678	1	13333	13466	1	4644	3251
Clay (others)	t	2	260	34	3	4770	692	2	-	-
Dunite	t	*	35164	24966	*	79524	91668	*	64120	97024
Felspar	t	1	37604	11465	1	42666	14934	-	57884	20282
Fireclay	t	14	106512	15953	16	145468	19768	8	161479	25278
Garnet (abrasive)	t	65	1643802	631223	55	660053	298597	64	355125	150319
Graphite (r.o.m.)	t	2	58305	29091	2	69109	49792	2	88545	52572
Gypsum	t	2	11906	2858	2	3190	1512	2	1410	554
Limestone	'000t	157	23957	4452152	197	26442	5217805	195	23963	5129212
Lime Kankar	t	2	310389	59114	2	192151	43426	2	140088	28481
Limeshell	t	1	86	86	1	105	105	1	60	60
Magnesite	t	6	149494	240578	10	160450	339026	9	145084	314336
Marl	t	**	239281	27610	**	96826	19018	**	37247	8925
Quartz	t	38	12631	14611	63	21367	28368	55	15756	14878
Silica Sand	t	7	4502	6518	7	10916	13337	6	11476	12846
Talc/steatite/ steatite	t	-	-	-	1	991	297	1	1280	384
Vermiculite	t	1	1542	3454	1	1373	3095	1	2202	4930
Minor Minerals@		-	-	3894860	-	-	4093451	-	-	4093451

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

* Associated with magnesite. ** Associated with limestone.

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

STATE REVIEWS

Mineral-based Industry

The present status of each mineral-based industry is not readily available. However, the important large and medium-scale mineral-based industries in organised sector in the State are given in Table -5.

Table – 5 : 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
Asbestos Products	
Hyderabad Industries Ltd, Kannigaiper.	100.0
Ramco Industries Ltd, Arakkonam, Distt. Kancheepuram.	NA
Tamil Nadu Asbestos, Alangulam, Distt. Virudhunagar.	28.5
Cement	
ACC Ltd, Madukkarai, Distt. Coimbatore.	1180
Chettinad Cement Corpn. Ltd, Karur, Distt. Dindigul.	1700
Chettinad Cement Corpn. Ltd, Karikalli Distt. Tiruchirapalli.	4500
Chettinad Cement Corpn. Ltd, Ariyalur.	5500
Dalmia Cements, Dalmiapuram, Distt. Tiruchirapalli.	4000
Dalmia Cements, Ariyalur.	2500
The India Cements Ltd, Sankarnagar, Distt. Tirunelveli.	2050
The India Cements Ltd, Sankaridurg, Distt. Salem (G).	860
The India Cements Ltd, Dalavoi, Ariyalur.	1850
The India Cements Ltd, Vallur, Distt. Chennai (G).	1100
Ultra-Tech Cement Ltd, Reddipalayam, Distt. Ariyalur.	1400
Ultra-Tech Cement Works, ARCW, Arakkonam (G).	1100
Madras Cements, R.S. Raja Nagar, Distt. Virudhunagar.	1800

(Contd.)

Table - 5 (Contd.)

Industry/plant	Capacity ('000 tpy)
Madras Cements, Alathiyur.	3120
Madras Cements, Ariyalur.	2000
Madras Cements, Uthiramerur (G).	600
Madras Cements, Salem (G).	600
Tamil Nadu Cements, Alangulam, Distt. Virudhunagar.	400
Tamil Nadu Cements, Ariyalur, Distt. Ariyalur.	500
Zuari Cements Ltd, Chennai (G).	1000
Ceramics	
Carborandum Universal Ltd, Hosur.	NA
Parryware Glamourooms Pvt. Ltd, Ranipet Distt. Vellore.	15
Murugappa Morgan Thermal Ceramics Ltd, Ranipet, Distt. Vellore.	5.44
Neycer India Ltd, Vadalur, Distt. Cuddalore.	9.0
Spartek Ltd, Chennai.	NA
Copper Smelter	
Sterlite Industries (I) Ltd, Thoothukudi.	400 (Cu smelting) 220(Cu cathode) 90 (wire rods) 1050 (H ₂ SO ₄)
Fertilizer	
Coimbatore Pioneer Fertilizer Ltd, Muthugoundanpadur, Distt. Coimbatore.	66 (SSP) 30 (H ₂ SO ₄) 3 (oleum)
Coramandal Fertilizer Ltd, Ranipet Distt. Vellore.	132 (SSP) 33 (H ₂ SO ₄)
Coramandal Fertilizer Ltd, Ennore, Distt. Thiruvallur.	300 (APS) 492 (phospho-gypsum)
Kothari Industrial Corp. Ltd, Ennore.	82.00 (SSP) 41.00 (SAP)
Madras Fertilizer Ltd, Manali, Distt. Thiruvallur.	486.7 (urea) 840 (NPK)
Greenstar Fertilizers Ltd (formerly Southern Petrochemical Industries Corpn. Ltd), Thoothukudi.	620 (Urea) 475 (DAP) 2.56 (AlF ₃)
Chemicals	
Tanfac Industries Ltd, Cuddalore.	16.5 (HF), 16.5 (AlF ₃) 67.5 (H ₂ SO ₄) 14 (Hydrofluoric acid)

(Contd.)

STATE REVIEWS

Table -5 (Contd.)

Industry/plant	Capacity (^{'000} tpy)
Tuticorin Alkali Chemicals & Fertilizers Ltd, Thoottukudi.	115 (soda ash) 115 (NH ₄ Cl)
Synthetic Rutile	
DCW Ltd, Sahupuram, Distt. Thoothukudi.	48
TiO₂ Pigment	
VVTi Pigments (P) Ltd, (formerly, Kilburn Chemicals) Distt. Thoothukudi.	18
Foundry	
Raja Foundry, Singanallur, Distt. Coimbatore.	NA
CPC Premier (P) Ltd, Coimbatore.	NA
Hinduja Foundries Ltd, Ennore.	NA
Krishna Engineering Co. Pvt Ltd, Tiruchirapalli.	NA
The KCP Ltd, Thiruvottiyur, Chennai.	NA
Iron & Steel	
Salem Steel Plant (SAIL), Salem.	320 (Crude/Liquid steel)
Southern Iron & Steel Co. Ltd, Salem.	180 (pig iron) 300 (saleable steel)
Sponge Iron	
Adhunik Metals Ltd, Eguvarpalayam, Distt. Thiruvallur.	60
Arshara Industries Ltd, Equvarpalayam, Distt. Thiruvallur.	60
Kaushik Steel Industries Ltd, Pappen Kuppam Distt. Thiruvallur.	60
Agni Steels Pvt Ltd, Olappalayam Road, Ingur, Distt. Erode.	30
Refractory	
ABREF Pvt. Ltd, Gummudipoondi, Distt. Thiruvallur.	1.3
Sharda Ceramics Pvt. Ltd, Ambattur, Chennai.	9.9

Table -5 (Concl.)

Industry/plant	Capacity (^{'000} tpy)
Shri Natraj Ceramic & Chemical Industries Ltd, Dalmiapuram, Distt. Tiruchirapalli.	42
VRW Refractories, Vanagaram.	21.6
Zirconium Complex, Pazhakayal, Thoothukudi.	0.5 (Zr-Oxide) 0.25 (Zr sponge)
DBM & Calcined Magnesite	
Badrinath Refractories, Salem.	0.9 (DBM) 2 (calcined)
SAIL Refractory Co. Ltd (Burn Standard Co. Ltd), Salem.	18 (calcined magnesite) 54 (DBM) 48 (refractory)
Dalmia Magnesite Corpn., Chettichavadi Distt. Salem.	72 (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, Distt. Salem.	19.5 (calcined magnesite) 30 (DBM)
Tata Refractories Ltd, Salem.	25 (DBM) 2 (Calcined)
Tamil Nadu Products, Salem.	3 (Calcined magnesite)
Pon Kumar Magnesite Ltd, Salem.	26.5 (DBM)
Silicon Carbide	
Carborandum Universal Ltd, Tiruvottiyur.	NA
Petroleum Refinery	
CPCL, Manali, Dist. Thiruvallur.	10500
CPCL, Narimanam.	1000

(G) : Grinding unit.