

STATE REVIEWS



Indian Minerals Yearbook 2021

(Part- I)

60th Edition

**STATE REVIEWS
(Tamil Nadu)**

(ADVANCE RELEASE)

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

Indira Bhavan, Civil Lines,
NAGPUR – 440 001

PHONE/FAX NO. (0712) 2565471
PBX : (0712) 2562649, 2560544, 2560648
E-MAIL : cme@ibm.gov.in
Website: www.ibm.gov.in

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TAMIL NADU

Mineral Resources

Tamil Nadu is the leading holder of country's resources of vermiculite, molybdenum, dunite, rutile, garnet, and ilmenite. The State accounts for the country's 79% vermiculite, 65% dunite, 48% garnet, 52% molybdenum, 25% sillimanite and 16% fire clay resources. As per AMD of the Department of Atomic Energy, Tamil Nadu accounted for 167.70 million tonnes of ilmenite resources and 7.85 million tonnes of rutile 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, Ramnathapuram, Sivaganga & 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, Tiruvarur, Nagapattinam, Ramnad, Shivganga & 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 Chennai, Coimbatore, Cuddalore, Dharmapuri, Dindigul, Erode, Kanchipuram, Karur, Madurai, Namakkal, Periyar, Perambalur, Salem, Thiruvallur, Tiruvarur, 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 & silver** in Villupuram district; **corundum & 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.

Exploration & Development

The details of exploration activities conducted by GSI for molybdenum during 2020-21 are furnished in Table - 3.

Production

The principal minerals produced in the state were Lignite, Natural Gas (utilised), Petroleum (crude), Limestone, Magnesite and Vermiculite in 2020-21.

The value of minor minerals' production was estimated at ₹ 226 crore for the year 2020-21.

The number of reporting mines was 92 in 2020-21 in case of MCDR minerals (Table-4).

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Table – 1: Reserves/Resources of Minerals as on 1.4.2020: Tamil Nadu

Mineral	Unit	Reserves				Feasibility				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	
Bauxite	000 Tonnes	-	-	-	-	1141	3564	960	10084	8363	-	24112	24112	
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	
Garnet	Tonne	52538	-	52538	266555	1153976	3094811	36000	1408995	19871019	-	25883356	25883894	
Gold														
Ore	Tonne	-	-	-	-	-	-	-	-	67000	-	67000	67000	
(Primary)														
Metal	Tonne	-	-	-	-	-	-	-	-	1	-	1	1	
(Primary)														
Graphite	Tonne	2289743	-	810450	3100193	39	39535	29136	647500	5886390	-	6605086	9705279	
Iron Ore	000 Tonnes	-	-	-	-	-	-	-	169388	110728	248785	528901	528901	
(Magnetite)														
Kyanite	Tonne	1683	-	1683	578	117	-	700	167000	79434	-	247829	249512	
Lead-Zinc Ore														
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	537272	3836	5915	547024	317801	239742	120594	95885	687457	900	1577025	2124049	
Magnesite	000 Tonnes	48760	6324	55084	71885	21695	3944	17	737	2124	-	100402	155486	
Molybdenum														
Ore	Tonne	-	-	-	-	1500000	-	2382000	3269204	10563494	167800	17882498	17882498	
Contained	Tonne	-	-	-	-	1050	-	1599.54	1733.29	5718.69	50.34	10151.86	10151.86	
MOS ₂														
Pt. Group of Metals	Tonne	-	-	-	-	-	-	-	0.61	0.72	0.36	1.69	1.69	

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Table -1 (concl'd)

Mineral	Unit	Reserves			Total (A)	Feasibility STD211	Pre-feasibility		Remaining Resources				Total resources (A+B)	
		Proved STD 111	Probable				STD221	STD222	Measured STD331	Indicated STD332	Inferred STD333	Reconnaissance STD334		Total (B)
Pyrite	000 Tonnes	-	-	-	-	-	-	-	-	24	-	-	24	24
Sillimanite	Tonne	134030	-	-	134030	55288	12336	13529146	92400	-	3529577	-	17218747	17352777
Silver														
Ore	Tonne	-	-	-	-	-	-	-	-	460000	-	-	790000	790000
Metal	Tonne	-	-	-	-	-	-	-	-	26.68	-	-	42.55	42.55
Titanium	Tonne	670221	-	-	670221	306876	60463	-	488404	93134394	-	-	113677284	114347505
Tungsten														
Ore	Tonne	-	-	-	-	-	-	-	-	-	250000	-	250000	250000
Contained	Tonne	-	-	-	-	-	-	-	-	-	50	-	50	50
WO ₃														
Vermiculite	Tonne	1516803	-	-	1516803	-	-	-	-	343051	-	-	343051	1859854
Wollastonite	Tonne	-	-	-	-	-	-	-	-	3533	-	-	3533	3533
Zircon	Tonne	36285	-	-	36285	22108	4225	-	17500	-	-	-	43833	80118

figure rounded off.

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Table – 2 : Reserves/Resources of Lignite as on 1.4.2021 : Tamil Nadu

(In million tonnes)

District	Proved	Indicated	Inferred	Total
Total	4926.92	21910.06	9652.62	36489.60
Cuddalore	4022.69	1525.29	1302.23	6850.21
Ariyalur	904.23	302.50	512.37	1719.10
Thanjavur & Thiruvarur	–	17248.06	3123.46	20371.52
Thanjavur	–	2306.17	156.33	2462.50
Thanjavur & Nagapattinam	–	359.21	926.62	1285.83
Thiruvarur & Nagapattinam	–	–	574.05	574.05
Ramanathapuram	–	–	2072.35	2241.18
Ramnad	–	–	964.97	964.97
Ramanathapuram & Sivaganga	–	168.83	20.24	20.24

*Source: Coal Directory of India, 2019-20***Table –3 : Details of Exploration Activities in Tamil Nadu, 2020-21**

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
GSI Molybdenum Dharmapuri	Velampatti north A & B blocks of Harur- Uttangarai molybdenum belt	-	-	4	488.75	-	Preliminary exploration (G3) for molybdenum and associated mineralisation in Velampatti north A & B blocks of Harur- Uttangarai molybdenum belt, Dharmapuri District. The investigation block was proposed for nine boreholes in different level as follows three 1st level at 50m vertical depth and five 2nd level at 100m vertical depth in 200m spacing one 3rd level drilling at 150m vertical depth with cumulative of 1500m drilling target and for analysis of such as Mo, W, Sn, Co, Ni, Pb, Cu, Zn and Ag. Geophysical survey methods (Gravity, Magnetic, IP and SP) were carried out, through which moderate sulphide zone had demarcated along the main shear zone. Boreholes were planned based on previous borehole and geophysical data. Till 31-3-2021, four boreholes were completed (1st and 2nd level). The first level boreholes TNDVN-5, TNDVN-6 & TNDVN-7 completed and one 2nd level borehole TNDVN-12 was under progress with cumulative drilling target of 488.75m as on 31-03- 2021. Chemical analysis of the core sample of BH: TNDVN- 05 had indicated 1.7m Mo lode with average grade of 769 ppm. Three lodes of Zn ranging from 3.65m to 4.55 with average

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Table – 3 (contd)

Agency/ Mineral/ District	Location Area/ Block	Mapping		Drilling		Sampling (No.)	Remarks Reserves/Resources estimated
		Scale	Area (sq km)	No. of boreholes	Meterage		
							grade ranging from 154 to 215 ppm. One lode of Cu: 1.2m with average grade of 217 ppm. BH: TNDVN-6 had intersected shear zone from 66.5 to 78 m depth. The shear zone consisted of 7m thick milky white quartz vein with thin veinlets and fine specks of sulphide (Galena and Mo) mineralisation. The BH: TNDVN-7 had intersected shear zone from 51.0 to 79.0 m. The chemical data has given good indication of molybdenum in BH: TNDVN- 5 (average 750 ppm) and associated sulphide mineralisation such as Co upto 217 ppm, and Zn up to 215 ppm. One II level bore-hole TNDVN-11 intersected shear zone started from 133 to 161m with thick quartz veins showing dissemination of molybdenum and galena, chalcopyrite. The drilling of 488.75 m was completed till 31-03-2021 out of 1500 m.

Table – 4 : Mineral Production in Tamil Nadu, 2018-19 to 2020-21
(Excluding Atomic Minerals)

(Value in ₹ '000)

Mineral	Unit	2018-19			2019-20			2020-21 (P)		
		No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}	No. of mines	Qty	Value ^{\$}
All Minerals		104		9821068	92		9771097	92		8175780
Lignite	'000t	-	23041	-	-	23516	-	-	18026	-
Natural Gas (ut.)	m c m	-	1208	-	-	1097	-	-	911	-
Petroleum (crude)	'000t	-	395	-	-	415	-	-	410	-
Garnet (abrasive)	t	4	7341	109197	2	-	-	2	-	-
Graphite (r.o.m.)	t	1*	-	-	1*	-	-	1	10026	10861
Limestone	'000t	93	23864	6895558	82	24461	7151088	83	21144	5531065
Magnesite	t	5	50644	198355	6	51147	222293	5	47646	208954
Marl %	t	-	95368	24700	-	502750	93752	-	916083	1605587
Vermiculite	t	1	706	2337	1	584	1933	1	510	1688
Minor Minerals		-	-	2590921	-	-	2302031	-	-	2262625

*Note: The number of mines excludes Fuel and Minor minerals.**\$ Excludes the value of Fuel minerals.*** Only labour reported.**% Associated with Limestone.*

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Mineral-based Industry

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

Table – 5 : Principal Mineral-based Industries

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
Ramco Industries Ltd, Arakkonam, Distt Vellore	NA
Southern Asbestos Cement Ltd, Arrakonam Distt Vellore	NA
Tamil Nadu Asbestos, Alangulam, Distt Virudhunagar	28.5
Cement	
ACC Ltd, Madukkarai, Distt Coimbatore	1000
Chettinad Cement Corpn. Ltd, Puliyaar, Distt Karur	1700
Chettinad Cement Corpn. Ltd, Karikalli Distt Dindigul	4500
Chettinad Cement Corpn. Ltd, Ariyalur	5500
Dalmia Cements, Dalmiapuram, Distt Tiruchirapalli	3400
Dalmia Cements, Ariyalur	3000
Dhandhapani Cement Pvt. Ltd Thathamangalam, Manachanallur	225
India Cements Ltd, Sankarnagar, Distt Tirunelveli	2050
India Cements Ltd, Sankaridurg, Distt Salem (G)	860
India Cements Ltd, Dalavoi, Distt Ariyalur	2160
India Cements Ltd, Vallur, Distt Chennai (G)	1100
India Cements Ltd, Panaiveedu, Thiruchengodu	1400
My Home Industries Ltd. Tuticor	1500
Ultra-Tech Cement Ltd, Reddipalayam, Distt Ariyalur	1400
Ultra-Tech Cement Works (ARCW), Arakkonam (G)	1100
Ramco Cement (formerly Madras Cement), R.S. Raja Nagar, Distt Virudhunagar	2000
Ramco Cement (formerly Madras Cement), Alathiyur Works, Distt Ariyalur	3050
Ramco Cement (formerly Madras Cement), Ariyalur Plant, Govindpuram, Distt Ariyalur	3500

(contd)

Table - 5 (contd)

Industry/plant	Capacity ('000 tpy)
Ramco Cement (formerly Madras Cement), Chengalpet Grinding Unit, Uthiramerur, Distt Kanchipuram (G)	500
Ramco Cement (formerly Madras Cement), Valapady, Distt Salem (G)	1600
Tamil Nadu Cements, Alangulam, Distt Virudhunagar	290
Tamil Nadu Cements, Ariyalur, Distt Ariyalur	500
Tamil Nadu News -print & Paper Ltd. Kagithapuram, Manmangalam	328.5
Vijay Cements Trichy	75
Zuari Cements Ltd, Chennai Grinding Unit, Attipattu, Tiruvallur (G)	900
Ceramics	
Carborandum Universal Ltd, Hosur	NA
Murugappa Morgan Thermal Ceramics Ltd, Ranipet, Distt Vellore	5.44
Neycer India Ltd, Vadalur, Distt Cuddalore	9.0
Roca Bathroom Product Pvt Ltd, Ranipet, Distt Erode	12.6
Roca Bathroom Product Pvt Ltd, Perundurai, Distt Vellore	24
Spartek Ltd, Chennai	NA
Copper Smelter	
Sterlite Industries (I) Ltd, Thoothukudi	400 (Cu smelting) 205 (Cu cathode) 90 (wire rods) 1050 (H ₂ SO ₄)
Chemicals	
Tanfac Industries Ltd, Cuddalore	16.5 (anhydrous HF), 16.5 (AlF ₃) 67.5 (H ₂ SO ₄) 14 (Hydrofluoric acid) 3.4 (speciality fluorides)
Tuticorin Alkali Chemicals & Fertilizers Ltd, Thoothukudi	115 (soda ash) 105 (A/Cl)
Vaiyapuri Shanthi Ferric alum Sellipalayam, Namakal	3.4 (Ferric alum)
Electrode	
AVR Electrodes, No1, SIDCO, Indl. Estate, Rajapalayam, Virudhnagar	250
Fertilizer	
Coimbatore Pioneer Fertilizer Ltd,	66 (SSP)
Muthugoundanpudur, Distt Coimbatore.	30 (H ₂ SO ₄) 3 (oleum)
Coramandal International Ltd, (Formerly EID Parry), Ranipet, Distt N. Arcot	132 (SSP) 33 (H ₂ SO ₄)

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Table -5 (contd)

Industry/plant	Capacity (^{'000 tpy})
Coramandal International Ltd, Ennore, Distt Thiruvallur.	330 (Complex)
Kothari Industrial Corp. Ltd, Ennore.	66 (SSP)
Madras Fertilizer Ltd, Manali, Distt Thiruvallur.	486.8 (Urea) 840 (NP/NPKs)
Greenstar Fertilizers Ltd, Guindy.	115 (SSP)
Southern Petrochemical Industries Corpn. Ltd), Thoothukudi.	620 (Urea)
Ferroalloy	
Electralloy Special Steel Casting Pvt. Ltd.	1.0 (alloy , Stainless steel casting)
Synthetic Rutile	
DCW Ltd, Sahupuram, Distt Thoothukudi.	48
TiO₂ Pigment	
VVTi Pigments (P) Ltd, (formerly, Kilburn Chemicals) Distt Thoothukudi	18 36 (Ferrous Sulphate Heptahydrate)
Iron & Steel	
Salem Steel Plant (SAIL), Salem.	180 (Crude/ Liquid steel)
JSW Steel Plant (acquired Southern Iron & Steel Co. Ltd), Salem.	1180 (sinter) 1000 (pig iron) 1000 (specialised alloy steel) 18000 (Crude/Liquid steel)
Sponge Iron	
Akshara Industries Ltd, Eguvarpalayam, Distt Thiruvallur.	100
Kaushik Steel Industries Ltd, Pappen Kuppam Distt Thiruvallur.	60
Agni Steels Pvt Ltd, Olappalayam Road, Ingur, Distt Erode.	36

(contd)

Table -5 (concl'd)

Industry/plant	Capacity (^{'000 tpy})
Refractory	
ABREF Pvt. Ltd, Gummidipoondi, Distt Thiruvallur.	1.3
Sharda Ceramics Pvt. Ltd, Ambattur, Chennai.	9.9
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	
SAIL Refractory Co. Ltd (formerly Burn Standard Co. Ltd), Salem	13(calcined magnesite) 61 (DBM) 15 (refractory bricks) 45(Dunite fraction)
Dalmia Magnesite Corpn., Chettichavadi Distt Salem.	72 (DBM)
Ramkrishna Magnesite Mines, Salem. Tamil Nadu Magnesite Ltd, Kurumbapatty, Distt Salem.	3 (calcined) 19.5(calcined magnesite) 30(DBM)
Sri 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.

Note: Data, not available for fertilizer and cement Industries on respective website, is taken from Indian Fertilizer Scenario, FAI Statistics, and Survey of Cement Industry & Directory, respectively.