DISTRICT SURVEY REPORT OF THOOTHUKUDI

தமிழ்நாடு அரசு
புவியியல் மற்றும் சுரங்கத்துறை

GOVERNMENT OF TAMIL NADU
DEPARTMENT OF GEOLOGY AND MINING

THOOTHUKUDI DISTRICT

ASSISTANT DIRECTOR (i/c)
DEPT.OF GEOLOGY AND MINING,
THOOTHUKUDI

DISTRICT COLLECTOR,
THOOTHUKUDI

1.0 INTRODUCTION

In conjunction to the Ministry of Environment, Forest and Climate Change, the Government of India Notification No.SO 141 (E) dated 15.01.2016 and SO 190 (E) dated 20.01.2016 the District Level Environment Impact Assessment Authority (DEIAA) and District Environment Appraisal Committee (DEAC) were constituted in Thoothukudi District for the grant of Environmental Clearance for category "B2" projects for quarrying of Minor Minerals.

The main purpose of preparation of District Survey Report is to identify the mineral resources and develop the mining activities along with relevant current geological data of the District. The DEAC will scrutinize and screen scope of the category "B2" projects and the DEIAA will grant Environmental Clearance based on the recommendations of the DEAC for the Minor Minerals on the basis of District Survey Report. This District Mineral Survey Report is prepared on the basis of field work carried out in Thoothukudi district by the official from Geological Survey of India and Directorate of Geology and Mining, (Thoothukudi District), Govt. of Tamilnadu.

The etymology of the word "Thoothukudi" can be traced back to the period when the locals used to tap drinking water by digging small ponds (oothu in Tamil). Oothukudi, meaning to dig and drink, later came to be known as Thoothukudi. The district has a long and an illustrious history dating back to the Pandyan era. In the tenth century A.D. the region was conquered by the Cholas and re-conquered by the Pandyan kings. Subsequently, Thoothukudi was ruled by Madurai Nayaks, the Portuguese, the Dutch and finally the English. The English ruled Thoothukudi, which was a part of Tirunelveli District, till India's Independence. It lies between $8^0$19'00" N Latitude and $78^0$40'00" E Longitude

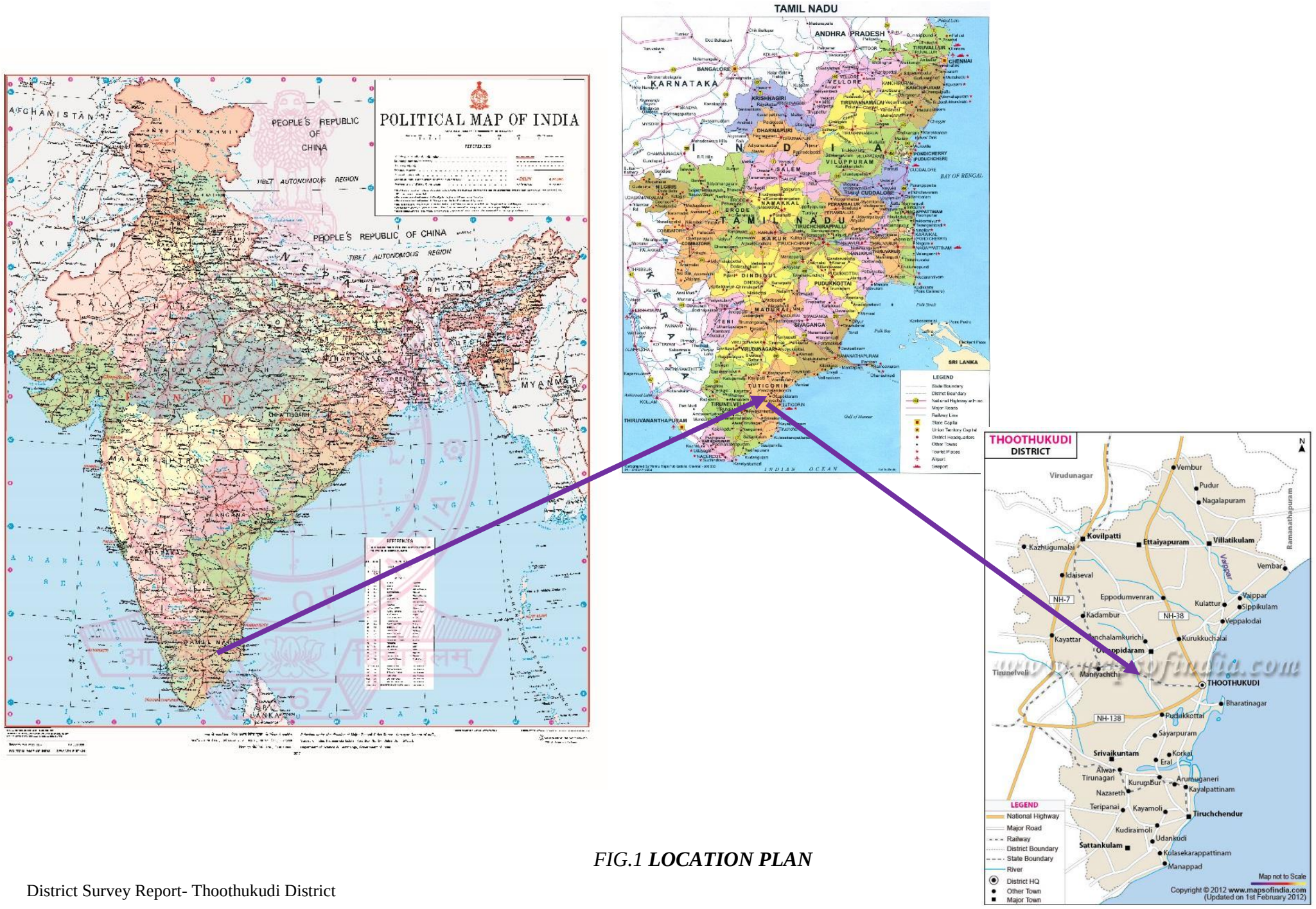


FIG.1 ***LOCATION PLAN***

The minor port of the Thoothukudi anchorage port with lighter age facilities has had flourished traffic for over a century. The first wooden jetty of this port was commissioned in 1864. This port was being used for export of salt, cotton yarn, senna leaves, palmyrah stalks, palmyrah fibres, dry fish, country drugs etc. to neighboring countries and for import of coal, cotton, copra, pulses and grains. The minor port of the Thoothukudi handled the distinction of being intermediate port handling the highest traffic tonnage of over 1 million per annum.

1.1 LOCATION

Thoothukudi District is located in the extreme south-eastern corner of Tamil Nadu State, between $8^0$19'00" N Latitude and $78^0$40'00" E. The District is bounded on the North by Virudhunagar and Ramanathapuram district, by Bay of Bengal in the East, Tirunelveli District in the West and South West.(Fig.1).

Thoothukudi district was carved out of the erstwhile Tirunelveli district on October 20, 1986. Thoothukudi was a major natural pearl fishing center till last century. It has one of the oldest ports in the world. The lighthouse built in 1842 marked the beginning of Thoothukudi's harbor development. India independence struggle has strong links with Thoothukudi. Notable freedom fighters like Subramaniya Bharathi, V.O.Chidambaram Pillai, Vanchinathan and Veerapandia Kattabomman hailed from Thoothukudi. The district has also been the headquarters of prominent missionaries like G.U.Pope, Veeramamunivar and Caldwell, who besides their missionary work, also contributed to the development of Tamil Language and literature. Thoothukudi was established as a Municipality in 1866 and on August 5, 2008 attained the status of Corporation after 142 years.

2.0 OVERVIEW OF THE MINING ACTIVITY IN THE DISTRICT

Thoothukudi district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnet-biotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene Granulite are the Charnockite Group.

The Department of Geology and Mining office is functioning in Thoothukudi District under the control of District Collector, Thoothukudi. The Assistant Director, Geology and Mining is assisting the District Collector in the mineral administration works.

At present the following mining/quarry leases are in existence in Thoothukudi District.

I) Details of Quarrying leases in patta and poromboke lands in the district.

Sl.No.	Name of the Mineral	Classification of Land	No.of Existing leases
1	Multi Colour Granite	Patta land	8
2	Rough Stone	Patta Land	28
		Government Land	4
3	Quartz and Quartzite	Patta	2
4	Gravel/Earth	Patta	3

Table No.1 Details of mining leases in patta and poromboke lands in the district

3.0 GENERAL PROFILE OF THOOTHUKUDI DISTRICT

3.1ADMINISTRATIVE

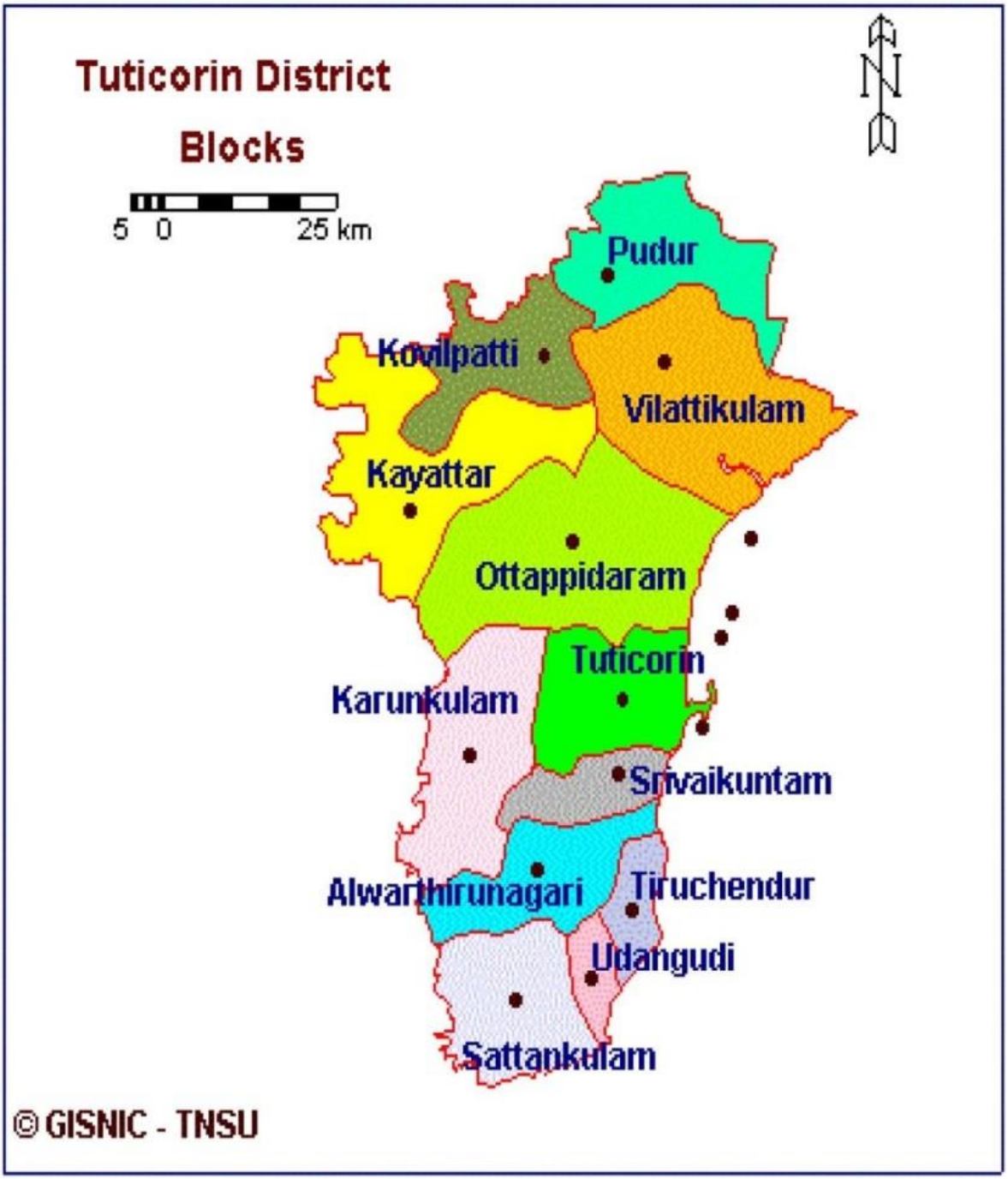
District Abstract			
1.	Area	:	4621 Sq.Kms
2.	No.of Revenue Divisions	:	3 - Thoothukudi , Kovilpatti and Thiruchendur
3.	No.of Taluks	:	8
4.	No.of Revenue Villages	:	480
5.	No.of Panchayat Unions	:	12
6.	No.of Village Panchayats	:	403
7.	No.of Town Panchayats	:	19
8.	No.of Municipalities	:	2
9.	No.of Corporation	:	1

Table No.2 Administrative details

The perennial river Tamiraparani flows almost in the sourhtern side of the district and feeds the entire district population. Thoothukudi district has consist of eight taluks such as Thoothukudi, Srivaikundam, Kovilpatti, Ettayapuram, Vilathikulam, Ottapidaram, Thiruchendur and Sathankulam) with total population of 17,50,176 (as per 2011 census).

3.2 ADMINISTRATIVE BLOCKS

The district is divided into 12 blocks for rural and urban development. The 12 blocks are:



1. Tuticorin, 2.Thiruchendur,
3. Udangudi, 4.Sathankulam,
5. Srivaikundam, 6.Alwarthirunagari,
7. Karunkulam, 8.Ottapidaram,
9. Kovilpatti, 10.Kayathar,
11. Vilathikulam, and 12.Pudur.

*FIG.2.**THOOTHUKUDI DISTRICT ADMINISTRATIVE BOUNDARY***

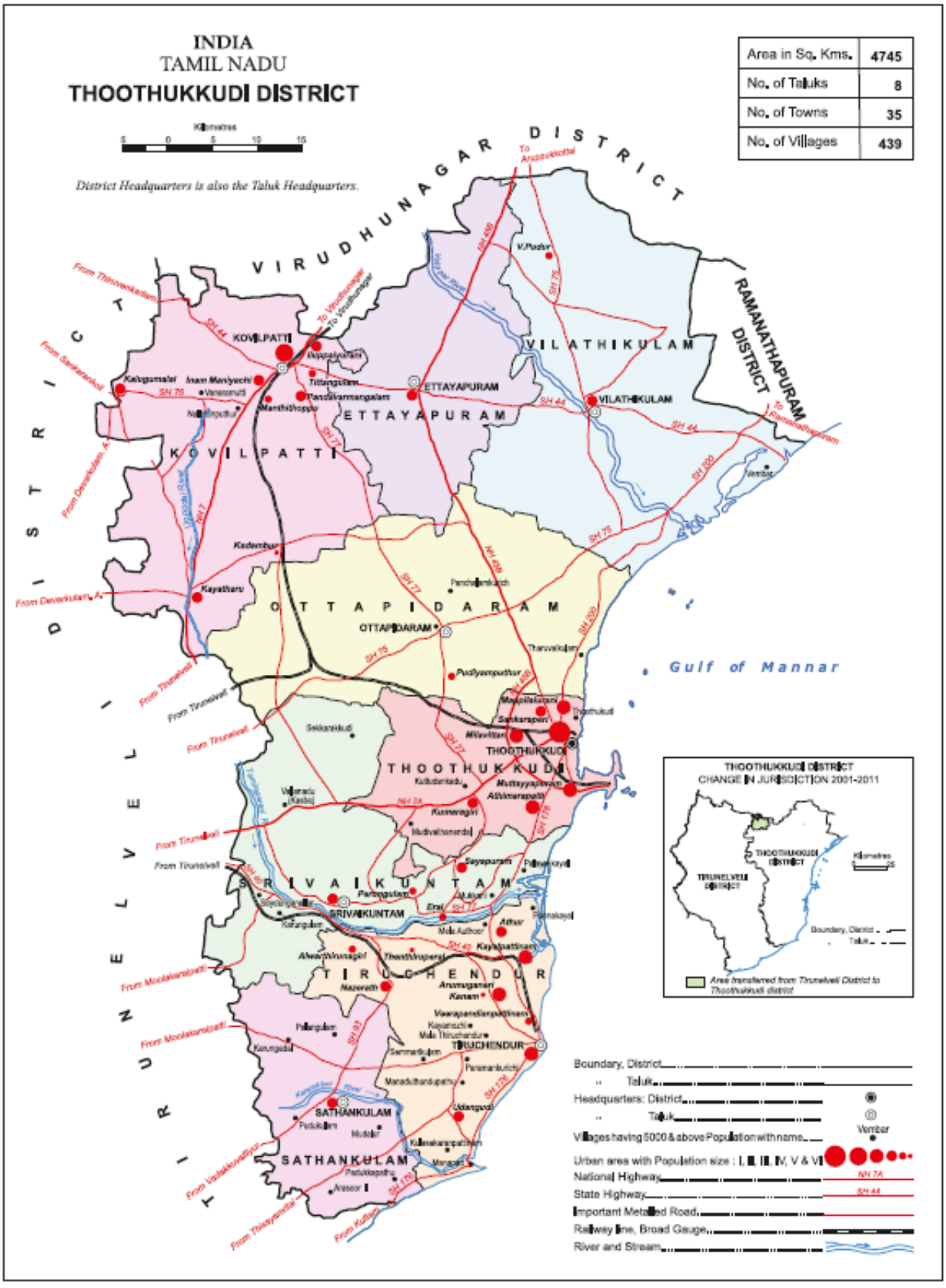


Fig.3 THOOTHUKUDI DISTRICT MAP SHOWING IMPORTANT TOWNS AND ROAD CONNECTIVITY.

3.3 POPULATION:

As per 2011 census the total population of the District is 17, 38,376 (Male- 8, 58,890, Female – 8, 79, 457, others-29). Rural population of the district is 8, 67,122 and Urban population is 8, 71,254. The district with population density of 338 sq.km is thickly populated thus making it more vulnerable to various disasters.

	As per 1991 Census	As per 2001 Census	As per 2011 Census
Total Population	1455920	1565743	1738376
Male Population	709760	764087	858890
Female Population	746160	801656	879457
Others	--	--	29
Rural Population	856229	903811	867122
Urban Population	599691	661932	871254

Table No.3.0 Total list of the Populations

3.3.1LITERATES

Total Literates :	1356564 (86.52%)
a) Males (%) :	706087 (91.42%)
b) Females (%):	650477 (81.77%)
Total	1356564 (86.52%)

Table No.3.1 Total List of Literates

3.4 PHYSIOGRAPHY

Thoothukudi district is one of the coastal district of Tamilnadu. In general the study area is an undulating topography with general slope towards east .The drainage network in the district is constituted by the rivers originating in Western Ghats and Tamilnadu uplands and flowing towards the Bay of Bengal. Few streams originate in the hillocks within the district and confluences directly with the sea. Vaippar(Vilathikulam Takuk) and Karamaniyar (Sathankulam Taluk) are the major rivers draining the area which are ephemeral in nature.Tamiraparani is the major and perennial river in the district with a mature stage of development.

List of Bridges over the Rivers / Water Courses

Sl.No	Bridge Location	Name of River
1.	Vallanadu	Tamirabarani
2.	Pudukottai	Kattodai
3.	Authoor	Tamirabarani
4.	Srivaikundam	Tamirabarani
5.	Tharuvaikulam	Kattodai
6.	Veppalodai	Kallar
7.	Pannaiyur	Kovankuttam supply channel
8.	Vaippar	Vaippar
9.	Pallakulam	Velanari odai
10.	E. Velayuthapuram	Chendakati Odai
11.	M. Shanmugapuram	Kalangari Odai
12.	Vembar	Vembar
13.	Vembar	Sea Back Water

Table No.4 List Of Bridges Over The Rivers / Water Courses

4.0 GEOLOGY OF THOOTHUKUDI DISTRICT:

Thoothukudi district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnet-biotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene Granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills.

Rock type found in the area belong to the Khondalite and Charnockite groups and Migmatite Complex of Easter Ghats Super group (Archaean Age),which are unconformably overlain by Tertiary and Quaternary sediments.Garnet-biotie-sillimanite gneiss, quartzite, calc-granulite and limestone of Khondalite group with epidiorite occurring as narrow linear bands.Charnockite group is represented by acid variants. These rock types occur as xenoliths within the Migmatite Complex occupies a major part of the area,comprising medium grained

hornblende-biotite gneiss and garnet-biotitegneiss.Gypsum, limestone, beach sand, kankar and shell limestone are the Economic minerals of the district.

Hard Rocks - 73%

Sedimentary Rocks - 27%

Crystalline Limestone, Multi color dimension stone, rough stone/gravel, garnet and ilmenite sand are noteble economic importance minerals of found in Thoothukudi District. Minor occurrences of Quartzite are also reported in the district. Mining activities based on rough stone (mostly charnockite) are majorly concentrated in Thoothukudi, Kovilpatti, Ettayapuram, Sathankulam, Ottapidaram Taluks in the district under operation for production of construction materials and earth fill as gravel.

Quaternary	Holocence to Recent	Alluvium Colluvium	Red Soil Coastal Sand Clay River Alluvium Laterite Red Teri Kankar Tuffaceous Kankar Shell LimeStone Calcareous Sandstone
Tertiary	Mio-Pliocence	Panamparai Sandstone	Hard,Compact, Calcareous Sandstone Shell Limestone
Proterozoic	Precambrian	Crystalline Complex	Charnockite Mixed Composite Gneiss Peliticgneiss Calc-Granulite Quarzite

Table No.5 Period Age Formation Lithology

The multi color dimension stones occurring at Ottudanpatti in Kovilpatti Taluk, Erachi in Ettayapuram Taluk and Pasuvanthanai, Keelamangalam in Ottapidaram Taluk are recorded in the district which actively mined by private miners.

Crystalline Limestone occurring as bands in Sivalarpatti, Maniyakkaranpatti, Arasoor and Mela Venkatachalapuram mined by M/s Ramco Cements and M/s. India Cements Ltd, in recent years.

Rich deposits of garnet and ilmenite sand occurs along the coast part of Thiruchendur Taluk, in Thoothukudi district. Kayalpatnam, Manappadu, Vaippar, Madhavankurichi, Vembar, Periyasamy puram and Padukkapathu areas show notable garnet and ilmenite sands occuurrences.

At present the following mining/quarry leases are in existence in Thoothukudi District.

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Table No.6 Details of mining leases in patta and poromboke lands in the district

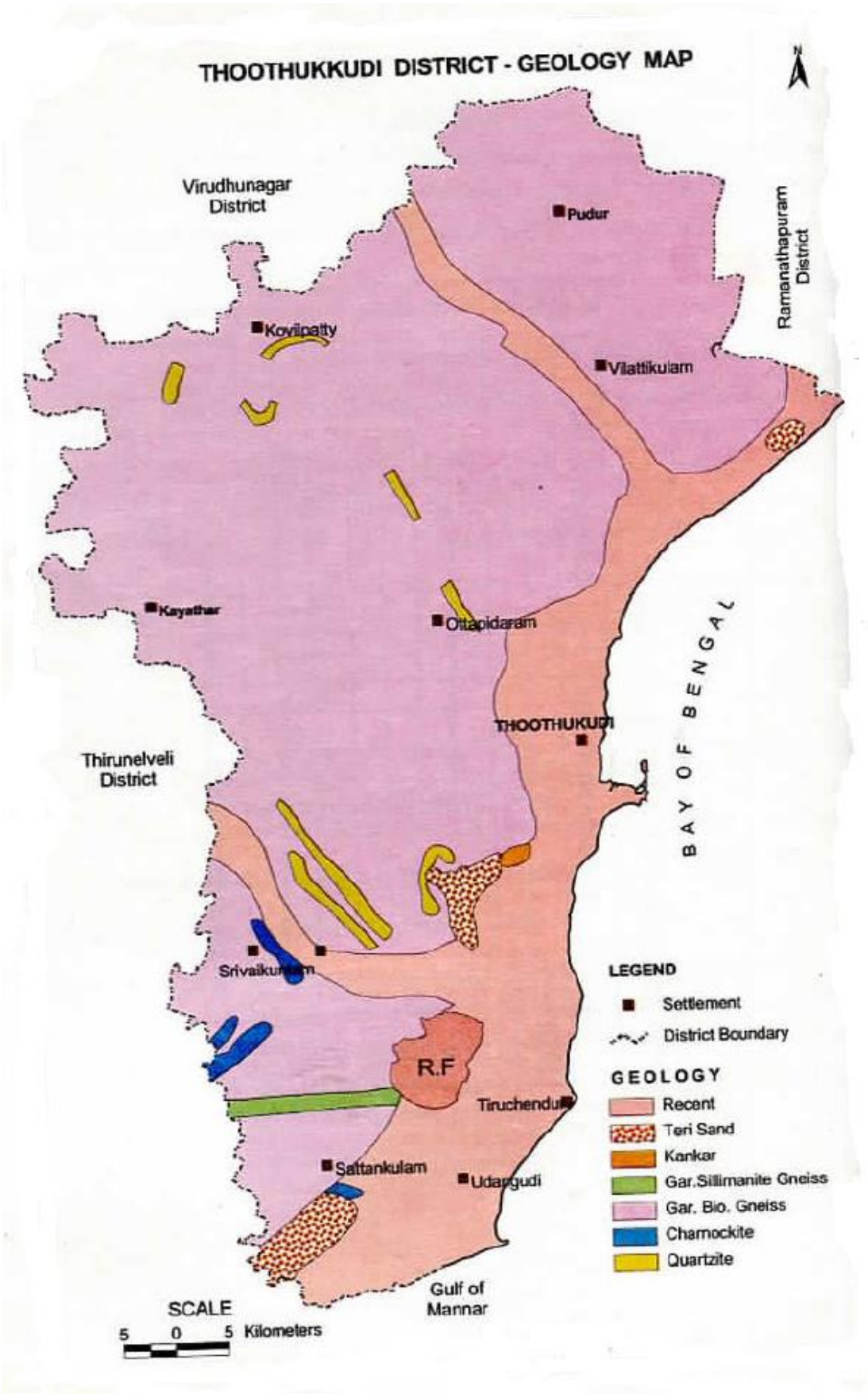


Fig. 4 *THOOTHUKUDI DISTRICT GEOLOGY MAP*

4.1 GEOMORPHOLOGY

The area is undulating country,slopping towards the sea coast with sand dunesand the back swamps.The Coastal tracts have recent dunes of white and red"teri"sand.The general drainage pattern is co-linear.Tamirabarani and vaippar rivers with their distributries constitute the natural drainage.The prominent geomorphic units identified in the district are 1) Fluvial, 2) Marine, 3) Fluvio-marine, 4) Aeolian and 5) Erosional landforms depending on the environment of formation. Taruvaikulam- Tuticorin surface, Kulattur surface Vaippar surface, Nagalapuram-Vedanattham surface and Volinokkam-Vembar surface are some of the erosional geomorphic units in the northern part of the district.Karamaniyar surface, Tambraparni surface, Tiruchendur-Kayalpattinam surface and Vallanadu surface are the geomorphic units in the southern part of the district.The number of red sandy tracts formed of the sand dunes locally known as Teri sand complex are the important feature in the coast. These Teri sands extend in width from 6 to 8 km from the coast. Adaippanvilai Teri, Kudiraimozhi teri and Vaippar-Vembar Teri are some of the important Teri areas, which are having elevation in the range of 15 to 62m above MSL.(Fig 7)

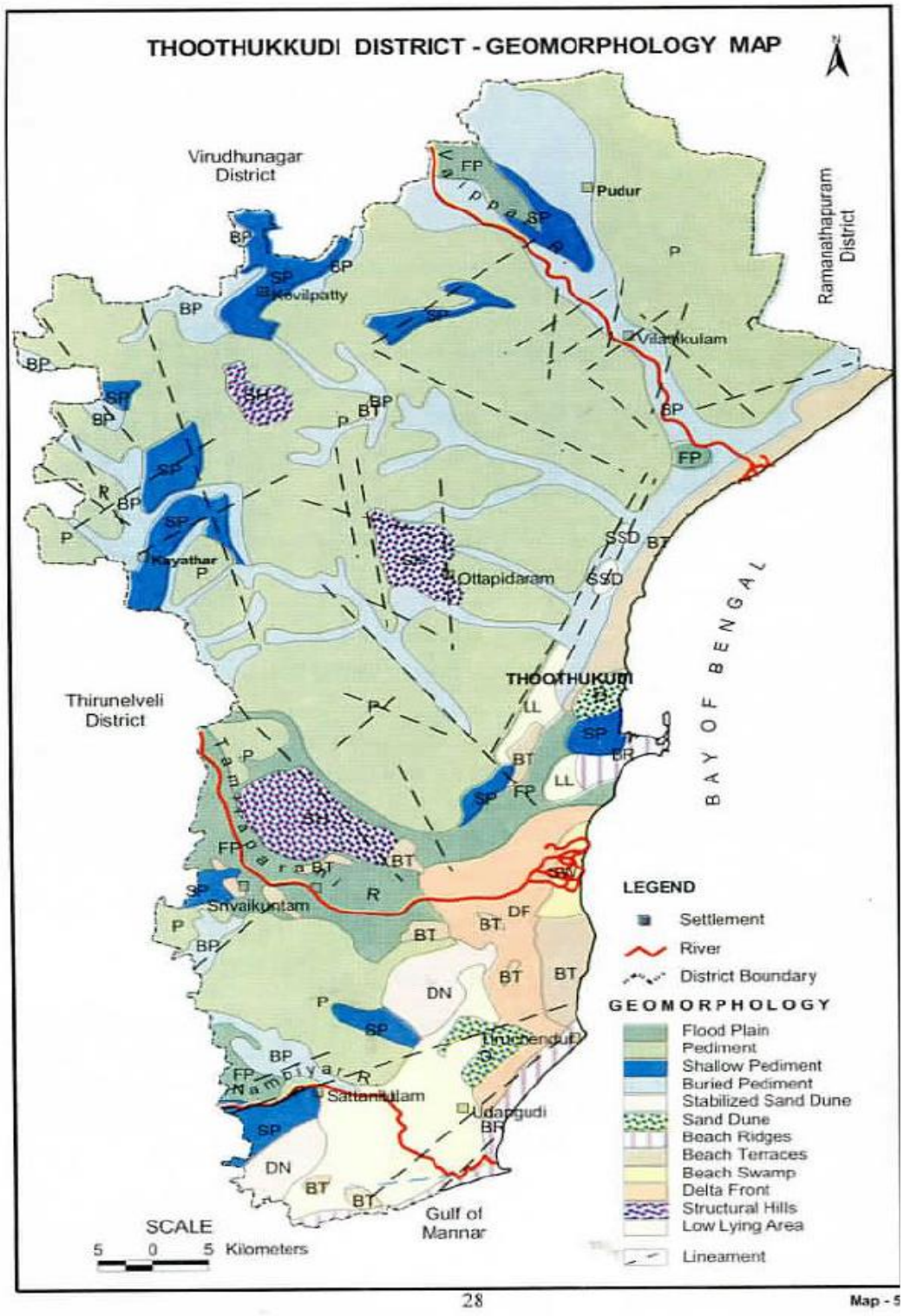


Fig.5 GEOMOPRPHOLOGY MAP

5.0 DRAINAGE OF IRRIGATION PATTERN

The Thamirabarani River originating from the Western Ghats and Tamil Nadu uplands control the drainage network of the district. A few streams originate in the hillocks within the district and confluences directly with the sea after flowing 10 to 20 km. Vaipar, Nambiyar, Tambraparani and Karamanaiyar are the major rivers draining the district. All the rivers are ephemeral in nature and run off is generated in heavy rainfall period only.

5.1 IRRIGATION PRACTICES

The nine--fold lands use classification for the district is given bellow. (2005--06)

S.No.	Classification	Area(Ha)
1	Forest	11012
2	Barren & Uncultivable Lands	19762
3	Land putt to nonagricultural uses	74489
4	Cultivable Wastte	58139
5	Permanent Pastures & other grazing lands	5132
6	Groves not included in the area sown	39256
7	Current Fallows	6693
8	Other Fallow Lands	72756
9	Net Area sown	71815
	Total	459054

Table No.7 **Irrigation Practices**

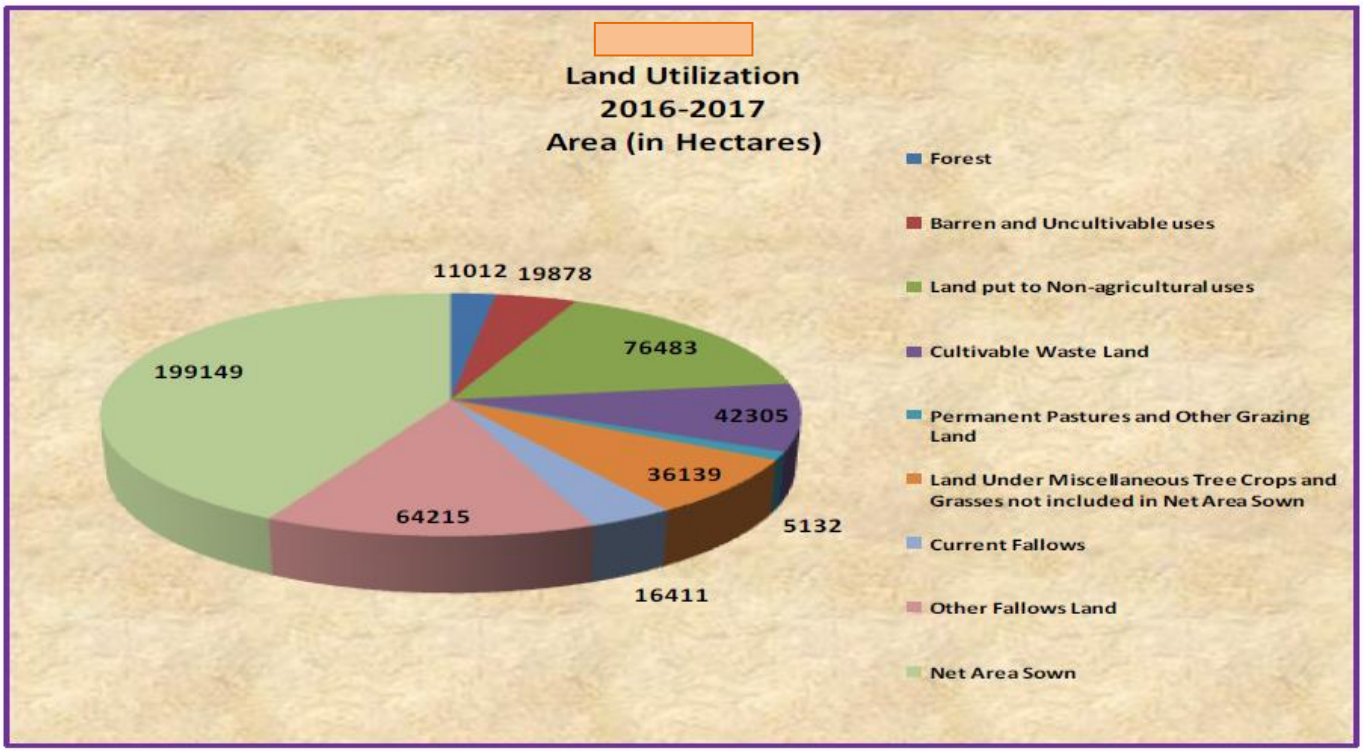
6.0 LAND UTILISATION PROFILE OF THE DISTRICT

Year 2016-17

S.No	Types of Soil	Area (in Hectares)
1	Forest	11012
2	Barren and Uncultivable uses	19878
3	Land put to Non-agricultural uses	76483
4	Cultivable Waste Land	42305
5	Permanent Pastures and Other Grazing Land	5132
6	Land Under Miscellaneous Tree Crops and Grasses not included in Net Area Sown	36139
7	Current Fallows	16411
8	Other Fallows Land	64215
9	Net Area Sown	199149
10	Geographical Area According to Village Papers	470724

Source: 'G' Return -2016-2017

Table No.8 **Land Utilisation Profile**



Source: 'G' Return -2016-2017

Fig.6 LAND UTILIZATION

7.0 SURFACE WATER AND GROUND WATER SCENARIO OF THE DISTRICT

The ground water resources have been computed jointly by Central Ground Water Board and State Ground & Surface Water Resources and Development Centre (PWD,WRO,

Block	Net Groundwater Availability (M.Cu.m)	Existing Gross Draft for Irrigation (M.Cu.m)	Existing Gross Draft for Domestic and industrial water supply (M.Cu.m)	Existing Gross Draft for all uses (M.Cu.m)	Allocation for Domestic and Industrial Requirement supply up to next 25 years (2029) (M.Cu.m)	Net groundwater Availability for future Irrigation Development (M.Cu.m)	Stage of Groundwater Development (%)	Category of Block
Alwarthirunagari	33.64	0.00	2.19	2.19	2.24	31.40	7	Safe
Karungulam	28.70	22.90	1.35	24.25	1.38	4.42	84	Semi Critical
Ettayapuram	26.04	31.76	2.04	33.80	2.09	Nil (-7.81)	130	Over Exploited
Kovilpatti	14.02	14.81	2.01	16.82	2.06	Nil (-2.85)	120	Over Exploited
Ottapidaram	20.03	27.48	0.81	28.29	0.83	Nil (-8.27)	141	Over Exploited
Pudur	7.58	6.49	0.71	7.20	0.72	0.37	95	Critical
Sathankulam	10.82	15.26	0.85	16.11	0.87	Nil (-5.32)	149	Over Exploited
Srivaikundam	35.44	4.88	1.80	6.69	1.85	28.70	19	Safe
Tiruchendur	16.73	10.21	1.65	11.86	1.69	4.83	71	Semi Critical
Thoothukkudi	15.42	16.50	1.10	17.60	1.13	Nil (-2.21)	114	Over Exploited
Udangudi	12.65	22.81	1.12	23.93	1.14	Nil (-11.30)	189	Over Exploited
Vilthikulam	4.15	5.74	0.82	6.56	0.84	Nil (-2.42)	158	Over Exploited
Total	225.23	178.86	16.45	195.30	16.85	29.52	87	Semi Critical

(Source: CGWB)

Government of Tamil Nadu) as on 31st March 2004 using GEC-97 methodology and the salient features of the computations are furnished above.

Table No.9 The Ground Water Resources List

7.1 BASIN AND SUB—BASIN

The district is part of the composite east flowing river basin,"Between Gundar and Nambiyar" as per the Irrigation Atlas of India. Nambiyar, Tambraparani, Kallar,Vaippar and Gundar are the important sub basins.

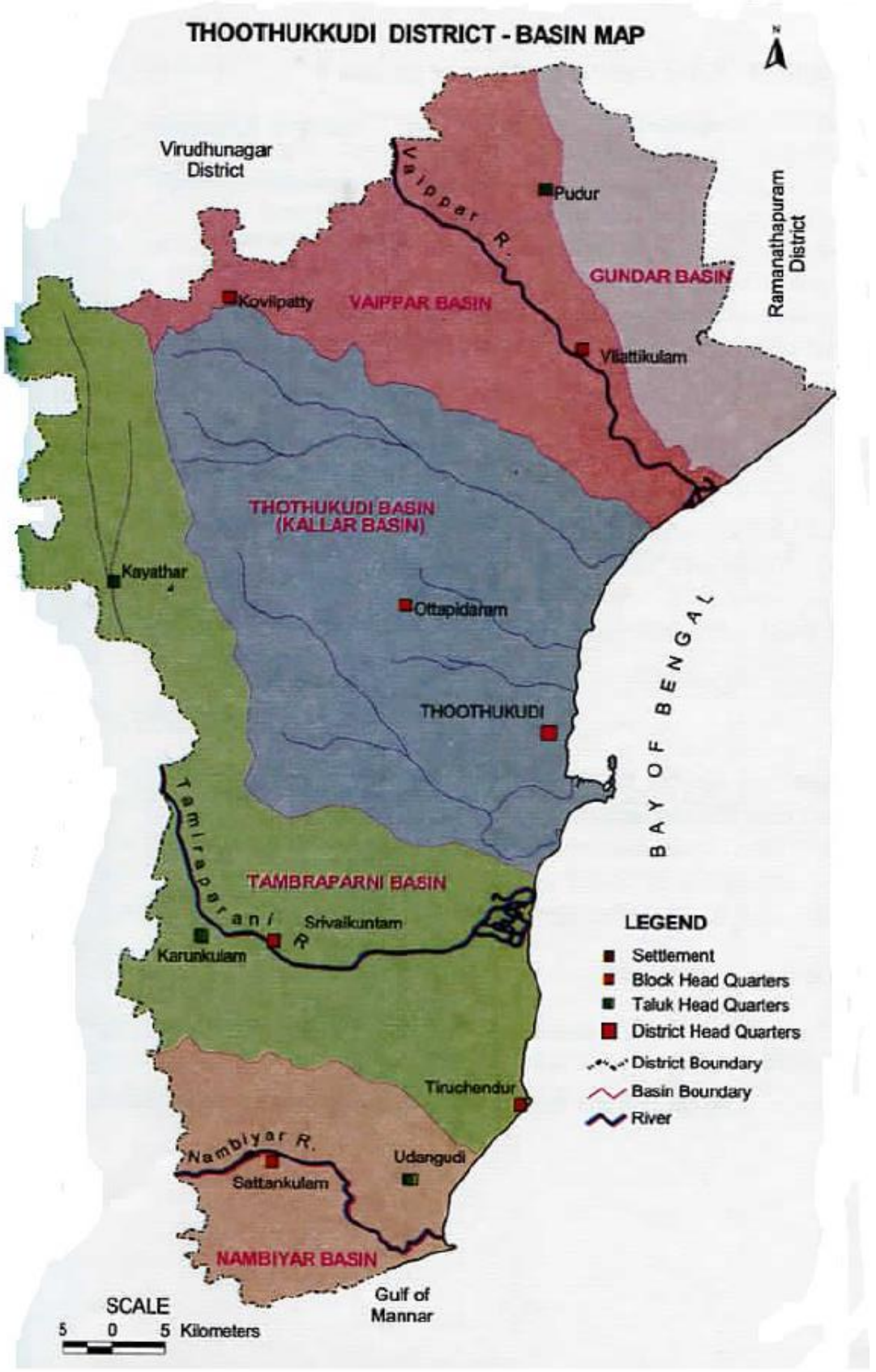


FIG .7 BASIN MAP

7.2 WATER RESOURCES

Tamiraparani river which rises in Agasthiyamalai of the western ghats, flows through Srivaikundam and Thiruchendur taluks and joins the sea at Punnakayl in Srivaikundam taluks. Pambayar and Manimuthar are the chief tributaries of Tamiraparani, which pass through the District. The Malattar and Uppodai flowing in Kovilpatti taluk are drainage courses.Tamiraparani and Manimutharu are the catchment areas of river basins, which have their place of origin in the Pothigaimalai.The former has a length of 120 km and the latter has a length of 98 km Pabanasam dam,Manimutharu dam and Eppodumvernan dam are built in the district.

8.0 CLIMATE AND RAINFALL OF THE DISTRICT

The District which situate on the east coast has the typical climate with high humidity and relatively lower to moderate temperatures throughout the year. The annual mean minimum and maximum temperatures are 23.780 and 33.950C respectively. At an average temperature of 31.6 °C, May is the hottest month of the year.In January, the average temperature is 26.5°C.The rainfall occurs mostly in the months of October, November and December. During the period from October to January the climate remains relatively cooler. From February, the early summer sets in and the months of April, May, June, July and August are hot months.

The district receives the rain under the under the influence of both southwest and northeast monsoons. The northeast monsoon chiefly contributes to the rainfall in the district. Most of the precipitation occurs in the form of cyclonic storms caused due to the depressions in Bay of Bengal. Precipitation is the lowest in August, with an average of 3 mm. Most precipitation falls in November, with an average of 238 mm.

Sl. No	Year	South West Monsoon		North East Monsoon		Winter Season		Hot Weather Season		Total%		Deviation (+ or – or =) from Normal
		Normal	Actual	Normal	Actual	Normal	Actual	Normal	Actual	Norma	Actual	
1	2004 -2005	86.8	151.1	410.1	551.4	46.6	61.5	112.2	171.1	665.7	935.1	+42.6
2	2005 -2006	86.8	48.4	410.1	453.6	46.6	36.1	112.2	139.9	665.7	678.0	+3.4
3	2006 -2007	86.8	62.0	410.1	670.6	46.6	40.2	112.2	64.4	665.7	837.2	+27.7
4	2007 -2008	86.8	101.7	410.1	370.4	46.6	94.9	112.2	323.9	655.7	890.9	+35.8
5	2008 -2009	86.8	65.7	410.1	584.1	46.6	7.0	112.2	113.3	655.7	770.1	+17.45
6	2009 -2010	86.8	54.5	410.1	490.5	46.6	23.3	112.2	66.4	655.7	634.7	-3.20
7	2010 -2011	86.8	109.5	410.1	523.5	42.8	13.7	111.6	46.0	651.3	692.7	+64
8	2011 -2012	74.9	30.3	427.0	550.9	42.8	16.2	111.6	72.8	656.3	670.2	2.1
9	2012 -2013	74.9	0.4	427.0	330.4	42.8	45.5	111.6	49.9	656.3	426.2	-35
10	2013 -2014	74.9	13.8	427.0	301.6	42.8	31.4	111.6	159.4	656.3	506.2	-22.9
11	2014 -2015	74.9	51.9	427.0	585.6	42.8	9.6	111.6	143.1	656.3	790.2	20.4
12	2015 -2016	74.9	60.0	427.0	664.3	42.8	3.4	111.6	49.5	656.3	777.2	18.4
13	2016 -2017	74.9	18	427.0	152. 6	42.8	14.7	111.6	32.2	656.3	217.4	-66.9

Source: Department ofEconomics and Statistics, Chennai.-6

Table No.10 Table Comparative Statement of monthly Rainfall data in Thoothukudi district in mm

(Source: http://www.thoothukudi.tn.nic.in 2017)

The southwest monsoon rainfall is highly erratic and summer rains are negligible. It is the minimum around Arasadi (577.4 mm) and Thoothukkudi (582.8 mm) in the central eastern part of the district. It gradually increases towards south, west and north and attains a maximum around Kayattar (722.5 mm) and Kovilpatti (734.8 mm) in the northwestern part. The annual rainfall normal (1970-2000) of Thoothukudi district is 655mm.Projections of rainfall over Thoothukudi for the periods 2010-2040 (2020s), 2040-2070 (2050s) and 2070-2100 (2080s) with reference to the baseline (1970-2000) indicate an increase of 2.0%, 8.0% and 10.0% respectively.

9.0 - DETAILS OF MINING LEASES / QUARRYING IN THE DISTRICT

Name of the Mineral: Multi - Colour Granite **District : Thoothukudi**

Sl.	Name of the Mineral	Name	Address Contact No. of Lessee	Mining Lease grant order No & Date	Area of Mining lease (Ha)	Period of Mining lease (Initial)		Period of Mining lease (1st /2nd ----- renewal)		Date of commencement of Mining operation	Status (working /Non-working/ Temp working for dispatch etc.,)	Captive / Non-Captive	Obtained Environmental Clearance (Yes/No), If yes letter No. with date of grant of EC	Location of the Mining Lease (Latitute & Longitute)	Method of Mining (Open cast/ Underground)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Multi Colour Granite	M/s.Kuber Granites,	Plot No.12, Warsik Complex, 70 Feet Road, Raja Muthiah Nagar Bypass, Madurai-10	Go.Ms.No.3 D No.1 Ind (MMB1) dated: 03.01.2007	Ottudanpatti Village, Kayathar Taluk, Thoothukudi 326/1, 326/2 & 326/3	02.02.2007	01.02.2027	--	--	13.06.2007	Non Working	Non-Captive	NO	11o25' 12" N 77o53' 01" E	Open cast
2	Multi Colour Granite	M/s. South Zone Granites	17/6 -3rd Street, Kovilpatti	Go.Ms.No.3 D No.50 Ind dated: 28.02.2006	Ottudanpatti Village, Kayathar Taluk, Thoothukudi 281/1(p), 281/2B (p) & 281/13A (p)	02.04.2006	01.04.2026	--	--	26.06.2006	Non Working	Non-Captive	NO	11o25' 20" N 77o53' 01" E	Open cast

3	Multi Colour Granite	Thiru. P.Bala krishnan,	No.5, 5th Main Road, Natesan Nagar, Nungampacckam Chennai	Go.Ms.(3D) No, 28 Ind (MMB 1) dated 02.05.2005	Ottudanpatti Village, Kayathar Taluk, Thoothukudi 697 (p)	01.06.2005	31.05.2025	--	--	--	Non Working	Non-Captive	NO	10o26.10” N 78o10.20” E	Open cast
4	Multi Colour Granite	M/s. V.V. Mineral	Keerakaran Thattu, Tisayanvilai, Tirunelveli	G.O.Ms(3D) No.115 Ind (MMB2) dated: 02.05.2003	Erachi Village, Ettayapuram Taluk, Thoothukudi 117/4, 5, 6B, 7B, 9, 10A etc.,	11.06.2003	10.06.2023	--	--	17.10.2007	Non Working	Non-Captive	NO	09o04.00” N 78o01.30” E	Open cast
5	Multi Colour Granite	Tmt. P. Nalinikuramari	Plot No:6, Xavier Colony, Melapalayam, Tirunelveli District,	G.O.(3D)No: 48, Ind (MMB-1) Dated 21.09.2011	Erachi Village, Ettaya puram Taluk, Thoothukudi 151/1A & 151/3	26.12.2011	25.12.2031	--	--	05.10.2012	Non Working	Non-Captive	NO	09o07.400” N 77o56.905” E	Open cast
6	Multi Colour Granite	Thiru.P.Palanichami	Anna Nagar, Madurai.	Go.Ms.No.5 Ind(MMB1) dated 08.01.2001	Pasuvanthanai & Keela mangalam Village, Ottapidaram Taluk, Thoothukodi 495/6, 7 etc., 19/A etc.,	10.06.2005	09.06.2025	--	--	08.07.2011	Non Working	Non-Captive	NO	08o58' 35.3” N 77o57' 46.2” E	Open cast

7	Multi Colour Granite	Thiru. D.Devaraj,	Door No.16, Manakavalan Street, Thoothukudi Town	G.O.(3D) No.12 Ind (MMB1) Dt: 02.09.2013	Erachi Village, Ettaya puram Taluk, Thoothukudi 61/1, 61/2A & 2B	23.12.2013	22.12.2033	--	--	30.12.2014	Working	Non-Captive	Yes SEIAA-TN/F.No.1401/EC/1(a)/693/2013 dated 19-08-2013	09o07.414” N 77o50.490” E	Open cast
8	Multi Colour Granite	Thiru. G. Gopalakrishnan,	588, West 4th Street, K. K. Nagar, Madurai	G.O.(3D) No.32 Ind (MMB1) Dt: 12.11.2015	Keelamangalam Village Ottapidaram Taluk, Thoothukudi 17/9A , 10A, 11A, etc.,	02.03.2016	01.03.2036	--	--	11.04.2016	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 4275/EC/1(a)/2349/2015 dt 06.11.2015	08o58’25” N to 08o58'34” N 77o57’43" E to 77o57'50” E	Open cast

Name of the Mineral: Rough Stone

Sl.	Name of the Mineral	Name	Address Contact No. of Lessee	Mining Lease grant order No & Date	Area of Mining lease (Ha)	Period of Mining lease (Initial)		Period of Mining lease (1st /2nd ----- renewal)		Date of commencement of Mining operation	Status (working /Non-working/ Temp working for dispatch etc.,)	Captive /Non-Captive	Obtained Environmental Clearance (Yes/No), If yes letter No. with date of grant of EC	Location of the Mining Lease (Latitute & Longitute)	Method of Mining (Open cast/Undergrround)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Rough stone & Gravel	Thiru. S. Shanmugavel,	Door No. 1/136, Church Street, Kattalankulam Village, Thoothukudi	G.M.1/114/ 2013 Dt:02.06.2014	Kattalankulam village Thoothukudi Taluk 418/1A (P) 3.80.0	02.06. 2014	01.06. 2019	--	--	07.07. 2014	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 1570/EC/ 1(a)/826/ 2013 dt 17.10.2013	09o40’ 37” N 77o58 ’59” E	Open cast
2	Rough stone & Gravel	Thiru S.Murugan,	No.308, Bypass Road, Pudukottai, Thoothukudi Taluk and District.	G.M.1/237/ 2013 Dt: 25 .08.2014	Keela Vallanadu Village ,Srivaikundam Taluk Thoothukudi 619/2 - 4.94.0	25.08. 2014	24.08. 2019	--	--	01.09. 2014	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 1476/EC/ 1(a)/829/ 2013 dt 17.10.2013	08o43’ 00” N 77o54' 29” E	Open cast
3	Rough stone & Gravel	Thiru.S. Maheswaran,	No.140K, Velayuthapuram Village, Kalugumalai (post), Kovilpatti Taluk, Thoothukudi	G.M.1/480/ 2012 Dated : 09.07.2016	Chettikurichi Village, Kayathar Taluk 281/2 - 3.95.0	09.07. 2016	08.07. 2021	--	--	17.08. 2016	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 2644/EC/ 1(a)/1592 /2014 dt 11.02.2015	09o3’58” N to 09o 04'204 ” N 77o43 ’31” E to 77o 43'38”	Open cast

													E	
4	Rough stone & Gravel	Thiru. S.Rex,	168B1, Cruzpuram, Thoothukudi Taluk	G.M.1/465/ 2016 dated :16.09.2016	Koppampatti village Kayathar Taluk 166/1B1 - 2.04.5	21.09. 2016	15.09. 2021	--	--	26.09. 2016	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 5643/ 1(a)/EC.NO.3643/2016 dt 06.09.2016	09o 02’18. 96” N to 09o 02'26. 44” N 77o 53 ’30.19” E to 77o 53’34. 72” E	Open cast
5	Rough stone & Gravel	Thiru. H. Stalin Chinnappan,	Hency Illam, Convent Junction, Kulasekaram village, Kalkulam Taluk, Kanyakumari,	G.M.1/636/ 2013 Dated : 23.09.2016	Meerankulam - I Village, Sattankulam Taluk 831/3A1 & 831/2A - 2.24.0	23.09. 2016	22.09. 2021	--	--	18.10. 2016	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 2122/ EC/1 (a)/1381/ 2013 dt 24.06.2014	08o33’ 01” N to 08o 33'08” N 77o 50 ’33” E to 77o 50’40” E	Open cast
6	Rough stone & Gravel	M/s. Peer Mohammed & Sons,	11A, Pavalar Street, Kayathar Village, Kovilpatti	G.M.1/619/ 2015 Dated : 30.12.2016	Therkku Ilanthikulam Village Kayathar Taluk 182/1A, 182/2 and 183/2A -	30.12. 2016	29.12. 2021	--	--	20.01. 2017	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 5771/ EC/1 (a)/3841/ 2016 dt 26.10.201	08o57’ 44.19” N to 08o 57'52. 64” N 77o45 04.70”	Open cast

					4.53.0							6	E to 77o 45’14. 73” E	
7	Rough stone & Gravel	Thiru. Kasirajan	Polepettai, Thoothukudi	G M 1/185/2014 date 11.02.2017	Mela Thattaparai Village Thoothukudi Taluk 345/2 - 0.77.0		10.02. 2022	--	--	06.06. 2017	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 5818/ 1(a)/EC.NO.3788/2016 dt 24.10.2016	08o48’ 19” N to 08o 48'23. 6” N 78o 01 ’23.19” E to 78o 01’24. 5” E	Open cast
8	Rough stone & Gravel	Thiru. T. Sudalaikumar,	Door No: 1, Neelapuram, Tiruchendur Taluk	Roc.No. 281/G&M/2016 Dated: 14.02.2018	Meerankulam I village, Sattankulam Taluk 389/3C, 390/2A1, 390/2A2, etc., - 2.51.0	12.04. 2018	11.04. 2023	--	--	29.05. 2018	Working	Non-Captive	Yes Lr.No.DEIAA-DIA/TN/MIN/154/2017-Thoothukudi Ec.No.2, Dated: 06.10.2017	08033’ 08” to 08033’ 17.7” 77052’ 10” to 77052’ 16.2”	Opencast

9	Rough stone & Gravel	Thiru. Vivekanthan, Director, M/s Sunram Blue Metals Private Ltd,	Kumarasamy Nagar, Muthiahpuram, Thoothukudi Taluk	Rc. No. 67/G&M/2015 Dated : 28.03.2018	Meerankulam I village, Sattankulam Taluk 26/1A, 26/1B , 26/2 , etc., - 4.94.0	27.04.2018	26.04.2023	--	--	27.08.2018	Non Working	Non-Captive	Yes Lr.No.DEIAA-DIA/TN/MIN/154/2017-Thoothukudi Ec.No.1, Dated: 06.10.2017	08032’45.07” N to 08032’51.35” N 77050’48.67” E to 77051’02.94” E	Open cast
10	Rough stone & Gravel	Tvl. R.R.Blue Metals Managing partner V.R.Elango,	No. 1/10, Thuvarkulam Junction, Kalunvellai Road, Kombankulam Village, Sathankulam Taluk, Thoothukudi	Rc. No.37/G&M/2014 Dated : 28.03.2018	Kombankulam Village, Sathankulam Taluk 306/3 (p) - 4.78.0	27.04.2018	29.03.2020	--	--	11.06.2018	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 2774/EC/1(a)/1862/2014 dt 30.03.2015	08027’40.25” N to 08027’54.76” N 77051’13.85” E to 77051’15.12” E	Open cast
11	Rough stone & Gravel	Tmt. S.Ayyammal,	Jameendevarkulam Village, Kovilpatti Taluk	G.M.1/395/2014 Dated : 18.10.2016 and 04.06.2018	Jameendevarkulam village, Kovilpatti Taluk 193/5, 193/6A, etc., - 2.05.5	05.06.2018	22.01.2021	--	--	15.06.2018	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 3376/EC/1(a)/2785/2015 dt 23.01.2016	09o10’41.8” N to 09o 10’48.0” N 77o 16’12.8 ” E to 77o 46’18.9 ” E	Open cast

12	Rough stone & Gravel	Thiru. V. Rengaraj	Door. No. 4/225, Muthammal Colony, 1st street, Thoothukudi	Rc. No.32/G&M /2017 Dated : 09 .07.2018	Umarikottai Village, Thoothukudi Taluk 241/2, 247/2 and 238/3A - 2.19.5	09.07. 2018	08.07. 2023	--	--	03.08. 2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN/MIN/154/2017 - Ec.No.9, Dated: .05.2018	08048’ 24.36” N to 08048’ 37.37” N 77059’ 41.87” E to 77059’ 48.20” E	Open cast
13	Rough stone & Gravel	Thiru. Radhakrishnan,	90/14, Kottai Melatheru, Ettayapuram Town	Rc. No. 335/G&M/2016 Dated : 09.07.2018	Navalakkampatti Village, Ettayapuram Taluk 5/1 -1.17.5	09.07. 2018	08.07. 2023	--	--	27.07. 2018	Non Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN/MIN/154/2017 - Ec.No.13, Dated: .05.2018	09011’ 16.2”N to 09011’ 20’N 77059’ 04.6”E to 77059’ 08.3”E	Open cast
14	Rough stone & Gravel	Thiru. K.R.Srinivasan, Proprietor K.R.S. Constructions,	134, Chellathamman kovil street, Managiri, Madurai	Rc. No. 310/G&M/2017 Dated : 10.07.2018	Ottapidaram Village and Taluk 641 (P) - 3.94.0	10.07. 2018	09.07. 2023	--	--	17.07. 2018		Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.12, Dated: .05.2018	08o 54’ 33.39” N to 08o 54’ 42.46” N 78o 00’07. 44 ” E to 78o00’ 15.80” E	Open cast

15	Rough stone & Gravel	Thiru. Vijayakumar,	Post office Street, Thenthiruperai village, Tiruchendur Taluk	Rc. No. 464/G&M/2017 Dated : 24.08.2018	Therkkukarasari Village, Srivaikundam Taluk 519/1, 519/3 & 520 - 4.59.5	24.08.2018	23.08.2023	--	--	07.09.2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.18, Dated: .08.2018	08o 36’ 06.05” N to 08o 36’ 11.54” N 77o 48 ’24.15 ” E to 77o48’ 33.57” E	Open cast
16	Rough stone & Gravel	Thiru. Selvam ,	177C, Selviammankoil Street, Narayanammalpuram, Tirunelveli District	Rc. No.90/G&M /2016 Dated : 24.08.2018	Chinnamalaikundru village, Ettayapuram Taluk 302/5, 303/3 & 303/5 - 2.23.0	24.08.2018	23.08.2023	--	--	06.09.2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No16 , Dated: .08.2018	09o10’ 25.00” N to 09o10’ 30.68” N 77o 58 ’09.26 ”E to 77o58’ 12.94” E	Open cast
17	Rough stone & Gravel	Tmt. V. Maheswari,	3/43, Middle Street, Erachi Village, Ettayapuram Taluk	Rc. No. 695/ G&M/2017 Dated :24.08.2018	Erachi Village, Ettayapuram Taluk 200/2, 200/3 and 200/4 - 1.33.0	24.08.2018	23.08.2023	--	--	13.12.2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT /TN-4/MIN/154/2017 - Ec.No.25, Dated: .08.2018	09o 06’ 51.19” N to 09o 06’ 58.34” N 77o 55 ’45.18 ” E to	Open cast

														77o 55 ’48.48 ” E	
18	Rough stone & Gravel	Thiru. Krishnan	West Car Street, Thenthiruperai village, Thiruchendur	Rc. No.463/G&M/2017 Dated : 24.08.2018	Therkkukarasari Village, Srivaikundam Taluk 652/1 and 652/3 - 2.31.0	24.08.2018	23.08.2023	--	--	07.09.2019	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.19, Dated: .08.2018	08o 36’ 36.96” N to 08o 36’ 43.76” N 77o 48 ’18.25 ” E to 77o48’ 23.34” E	Open cast
19	Rough stone & Gravel	Thiru. P.Kasirajan,	Polepettai (west), Thoothukudi	Rc. No. 250/ G&M/2016 Dated :24.08.2018	Mela Thattaparai Village, Thoothukudi Taluk 343/1 and 343/2 - 1.21.0	24.08.2018	23.08.2023	--	--	06.09.2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.27, Dated: .08.2018	08o 48’ 12.86” N to 08o 48’ 17.32” N 78o 01’21.86 ” E to 78o 01’25.76 ” E	Open cast

20	Rough stone & Gravel	Thiru. Jerry Cardoza,	97G/2, Teacher's Colony, IInd Street, (East), Thoothukudi	Rc. No. 554/ G&M/2017 Dated : 24.08.2018	Melathattaparai village-Thoothukudi Taluk 389/1A, 391 and 394/2 - 2.51.0	24.08. 2018	23.08. 2023	--	--	06.09. 2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.22, Dated: .08.2018	08o 48' 17.19" N to 08o 48' 27.71" N 78o 01 '33.02 " E to 78o 01 '37.30 " E	Open cast
21	Rough stone & Gravel	Thiru. V.Karuppasamy,	Madurai Main Road, Sannathu Pudhukudi, Kovilpatti	Rc. No. 323/ G&M/2016 Dated : 24 .08.2018	Akilandapuram village, Kayathar Taluk 319/1C1C, 319/1C2, 319/3B, 320/2C, 321/1B1, 321/2A, 321/3 & 322/2B - 3.25.0	24.08. 2018	23.08. 2023	--	--	05.09. 2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.23, Dated: .08.2018	08o 59' 23" N to 08o 59' 33" N 77o 47 '55" E to 77o 48 '02" E	Open cast
22	Rough stone & Gravel	Thiru. K.R.Srinivasan, Proprietor K.R.S. Constructions,	134, Chellathamman kovil street, Managiri, Madurai	Rc. No. 201/G&M/2018 Dated : 03 .09.2018	of Saminatham Village, Ottapidaram Taluk 283/1 and 284/3 - 2.74.0	03.09. 2018	02.09. 2023	--	--	07.09. 2018		Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.20, Dated: .08.2018	08o 51' 35.00" N to 08o 51' 43.85" N 78o 04 '18.42	Open cast

														” E to 78o 04 ’23.82 ” E	
23	Rough stone & Gravel	M/s. Madhucon Projects Ltd.,	15/1, Sinthalakarai post, Ettayapuram	Rc. No. 134/ G&M/2017 Dated :05.09.2018	Ettayapuram village and Taluk 652/4 (P) - 1.21.5	05.09. 2018	04.09. 2023	--	--	--		Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.21, Dated: .08.2018	09o 10’ 5.82” N to 09o 10’ 12.6” N 78o 00 ’17.1” E to 78o 00 ’19.68” E	Open cast
24	Rough stone & Gravel	Thiru. Karuppasamy,	39, Veeran Sundaralingam Nagar, Vellaram, Thoothukudi	Rc. No. G.M.1/371/ 2018 Dated : 05.10.2018	Panchalankurichi Village, Ottapidaram Taluk 448/2 - 2.44.5	05.10. 2018	04.10. 2023	--	--	16.10. 2018	Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.28, Dated: .08.2018	08o 56’ 36.24” N to 08o 56’ 40.56” N 77o 55 ’46.44” E to 78o 02 ’51.70” E	Open cast

25	Rough stone & Gravel	K. Ananth aperu mal,	17B, Vallaiyanatha samy kovil street, Thoothukudi District	Rc. No.409/G& M/2016 Dated : 16.10.2018	Chinnamala ikundru village, Ettayapura m Taluk 304/1 & 304/2 - 1.79.0	16.10. 2018	15.10. 2023	--	--	--	Non Working	Non-Captive	Yes Lr.No.DEI AA-TUT/TN-4/MIN/15 4/2017 - Ec.No.15, Dated: .07.2018	09010’ 19.29” N to 09010’ 24.88” N 77058’ 08.82” E to 77058’ 15.01” E	Open cast
26	Rough stone & Gravel	M/s. Shri Venkat eswara Constr uction Materi als & Indust ries,	189, Palayamkotta i Road, Thoothukudi 628 008.	Rc. No. G.M.1/155/ 2013 Dated : 09.10.2018	Srivaikunda m Taluk – Padmanaba mangalam Village 717 (p) & 725 (p) - 4.91.0	09.10. 2018	08.10. 2023	--	--	16.10. 2018	Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 3138/EC/ 1(a)/2225 /2015 dt 23.10.201 5	09o 39’ 54” N to 08o 40’1” N 77o 55 ’15” E to 77o 55’24” E	Open cast
27	Rough stone & Gravel	Thiru J Raja Jebado ss	3/442-4, Therri Road, Puducottai	Rc. No. G.M.1/816/ 13 Date : 06.12.2018	Srivaikunda m Taluk Padmanaba mangalam Village 739/1 - 1.84.0	13.12. 2018	12.12. 2023	--	--	18.12. 2018	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 3032/EC/ 1(a)/2339 /2015 dt 04.11.201 5	08o 39’ 52” N to 08o 40’ 02” N 77o 54 ’57” E to 77o 55’01” E	Open cast

28	Rough stone & Gravel	Thiru. Murugan,	135, North Street, Vellur Village, Srivaikundam	Rc. No. 412/ G&M/2015 Dated : 06.12.2018	Srivaikundam Taluk Kalvay Village 367/1B, 367/2 and 367/3 - 2.53.0	07.12. 2018	06.12. 2023	--	--	08.02. 2019	Non Working	Non-Captive	Yes Lr.No.DEIAA-TUT/TN-4/MIN/154/2017 - Ec.No.17, Dated: 14.08.2018	08o 35’ 11.1” N to 08o 35’ 19.4” N 77o 52 ’53.9” E to 77o 53’00. 4” E	Open cast
29	Rough stone & Gravel	Thiru S. Sudharasan,	No.16/C/1, Cruzpuram, Thoothukudi	GM1/305/2010, Date.09.08.2010	Padmanabamangalam, Village, Srivaikundam Taluk Thoothukudi 801-1.67.0	09.08. 2010	08.08. 2020	--	--	09.10. 2010	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 5063/ 1(a)/EC No. 3620/2016 dt 30.08.2016	08o39’ 44” N to 08o39’ 52” N 77o54 ’29” E to 77o54 ’34” E	Open cast
30	Rough stone & Gravel	Thiru T.Vijay,	Victoria Extension Road, Thoothukudi	GM1/306/2010, Dt:09.08.2010	Padmanabamangalam Village Srivaikundam Taluk Thoothukudi - 802 - 1.93.5	09.08. 2010	08.08. 2020	--	--	09.10. 2010	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 5062/ 1(a)/EC No. 3619/2016 dt 30.08.2016	08o39’ 51” N to 08o39’ 59” N 77o54 ’27” E to 77o54 ’31” E	Open cast

31	Rough stone & Gravel	Thiru K. Kathir Kamaraj,	No.37, Trust Cross Street, Mandavelipakkam, Chennai-28	G.M-1/303/2010 Dt:20.09.2010	Padmanabamangalam Village Srivaikundam Taluk Thoothukudi - 794/1 - 1.79.0	20.09.2010	19.09.2020	--	--	28.12.2011	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 4258/EC/1(a)/3037/2015 dt 25.02.2016	08o40’03” N to 08o40’10” N 77o54’37” E to 77o54’41" E	Open cast
32	Rough stone & Gravel	Thiru K. Kathir Kamaraj,	No.37, Trust Cross Street, Mandavelipakkam, Chennai-28	G.M-1/304/2010 Dt:20.09.2010	Padmanabamangalam Village Srivaikundam Taluk Thoothukudi - 794/3 - 1.78.5	20.09.2010	19.09.2020	--	--	27.08.2012	Non Working	Non-Captive	Yes Lr. SEIAA-TN/F.NO. 4259/EC/1(a)/3038/2015 dt 25.02.2016	08o39’50” N to 08o39’57” N 77o54’37” E to 77o54’40" E	Open cast

Name of the Mineral : Gravel/Earth

Sl.	Name of the Mineral	Name	Address Contact No. of Lessee	Mining Lease grant order No & Date	Area of Mining lease (Ha)	Period of Mining lease (Initial)		Period of Mining lease (1st /2nd ----- renewal)		Date of commencement of Mining operation	Status (working /Non-working/ Temp working for dispatch etc.,)	Captive /Non-Captive	Obtained Environmental Clearance (Yes/No), If yes letter No. with date of grant of EC	Location of the Mining Lease (Latitute & Longitute)	Method of Mining (Open cast/ Underground)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Gravel / Earth	Thiru. S. Rajive,	161C/1, Cruzpuram, Thoothukudi	G.M.1/105/ 2016dated: 08.10.2016	Poosanur Village, Vilathikulam Taluk 266/1B, 3A & 3B - 1.91.5	08.10. 2016	07.10. 2019	--	--	23.12. 2016	Non-Working	Non - Captive	Yes Lr. SEIAA-TN/F.NO. 5644/1(a) /EC.No.3742/2016 dt 26.09.2016	09o03’ 51.17” N to 09o 03'46. 13” N 78o11 ’21.54" E to 78o11' 15.93” E	Open cast
2	Gravel	Thiru. N. Venkatachala perumal,	No. 85F, Pudur New Colony, Thiruvalluvar Street, S.S. Colony, Madurai-625 016	Rc. No.731/G& M/2017 dated:06.07 .2018	Ottapidaram village & Taluk 179/2 - 1.30.5	06.07. 2018	05.07. 2019	--	--	16.07. 2018	Working	Non - Captive	Yes, Lr.No.DEIAA-TUT/TN/ MIN/154/ 2017 - Ec.No.11, Dated: .05.2018	08^0 53’22. 85”N to 08^0’53 26.26” N $78^0$04’ 06.20” E to $78^0$04’ 12.31”	Open cast

														E	
3	Gravel	Thiru, M. Sheik Mansoor	SAL and Company, Plot No.570, K.K. Nagar, Madurai	Rc. No.445/G&M/2016 Dt: 05.09.2018	Kulasekaranalloor Village Ottapidaram Taluk 250/2 - 2.56.0	05.09.2018	04.09.2021	--	--	11.09.2018	Working	Non - Captive	Yes, Lr.No.DEIAA-TUT/TN/MIN/154/2017 - Ec.No.26, Dated: .08.2018	08^0 54'13.65"N to 080 54'13.65"N $77^0$59' 52.04" E to 77059' 59.73" E	Open cast

Name of the Mineral: Quartz/Quartzite

Sl.	Name of the Mineral	Name	Address Contact No. of Lessee	Mining Lease grant order No & Date	Area of Mining lease (Ha)	Period of Mining lease (Initial)		Period of Mining lease (1st /2nd ----- renewal)		Date of commencement of Mining operation	Status (working / Non-working/ Temp working for dispatch etc.,)	Captive /Non-Captive	Obtained Environmental Clearance (Yes/No), If yes letter No. with date of grant of EC	Location of the Mining Lease (Latitute & Longitute)	Method of Mining (Open cast/ Underground)
						From	To	From	To						
1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16
1	Quartz / Quartzite	P.Chellaganesan	389/18 W.G.C.Road, Thoothukudi	D.G.M.Pro. No.2384/ MM6/2005 Dated:27.04 .2006	Ottapidaram village & Taluk 555/2B - 4.26.5	05.06. 2006	04.06. 2036	--	--	29.08. 2013	Working	Non-Captive	Yes, Lt. No.DEIAA-TUT/TN-4/MIN/154/2017-EC No.29 Dt: .08.2018	08^0 53'05. 91"N to 08^0'53' 19.98" N $78^0$01' 18.73" E to $78^0$01' 21.94" E	Open cast
2	Quartz / Quartzite	K.Vijayalakshmi,	97 G, 4F/3, Teacher's Colony Fifth Street , Thoothukudi	D.G.M.Pro. No.3384/ MM6/2005 Dated:31.03 .2006	Ottapidaram village & Taluk 555/2B - 4.26.5	15.06. 2006	14.06. 2036	--	--		Non Working	Non-Captive	No	08o45' 00" N 78o00' 00" E	Open cast

10.0 - DETAILS OF THE ROYALTY OR REVENUE RECEIVED IN THE LAST 3 YEARS FROM 2015-2019

Reconciled Revenue for the period from 2015-2016 to 2018-2019 in Thoothukudi													
Year	**Apr**	**May**	**June**	**July**	**Aug**	**Sep**	**Oct**	**Nov**	**Dec**	**Jan**	**Feb**	**Mar**	**Total**
2015-2016	9633987	8766800	10347015	13752779	25283410	12717030	12080128	6177375	10938869	7370745	12731371	17704031	147503540
2016-2017	7751334	8930343	14306055	12572094	15721508	10795235	13089410	6636875	8524671	6132047	4567420	8813411	117840403
2017-2018	6982745	6646895	11427514	9913001	8706932	7838885	8833760	3899653	7868734	6786734	4309965	8725565	91940383
2018-2019	10694631	8277955	8165780	8978037	9604518	9964475	14285906	11572622	8852451	7635152	7342025	8925302	114298854

Reconciled Revenue for the period from 2015-2016 to 2018-2019(Mar)

11.0 - DETAILS OF PRODUCTION OF MINOR MINERALS IN LAST THREE YEARS FROM 2015 - 2016 to 2018 - 2019

YEARWISE MINERAL PRODUCTION FOR THE YEAR 2015 - 2019										
Sl. No.	Year	31. Minor Minerals (tonnes)			Minor Minerals (Cbm)					
		Quartzite	Quartz	Total Production (31 Minor Minerlas)	Rough stone	Black Granite	Colour Granite	Gravel	Earth/Silt	Total Production (Minor Minerals)
(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
1	2015-16	525	0	**525**	1101661	0	40.336	250080	127148	**1478929.336**
2	2016-17	1755	**0**	**1755**	760351	0	2018.949	254418	138249	**1155036.949**
3	2017-18	1710	**0**	**1710**	251565	0	354.535	58881	0	**310800.535**
4	2018-19	76809	**0**	**76809**	424061	**0**	**0**	256098	**0**	**680159**
Total		**80799**	**0**	**80799**	**2537638**	**0**	**2413.82**	**819477**	**265397**	**3624925.82**

12.0 MINERAL MAP OF THE DISTRICT

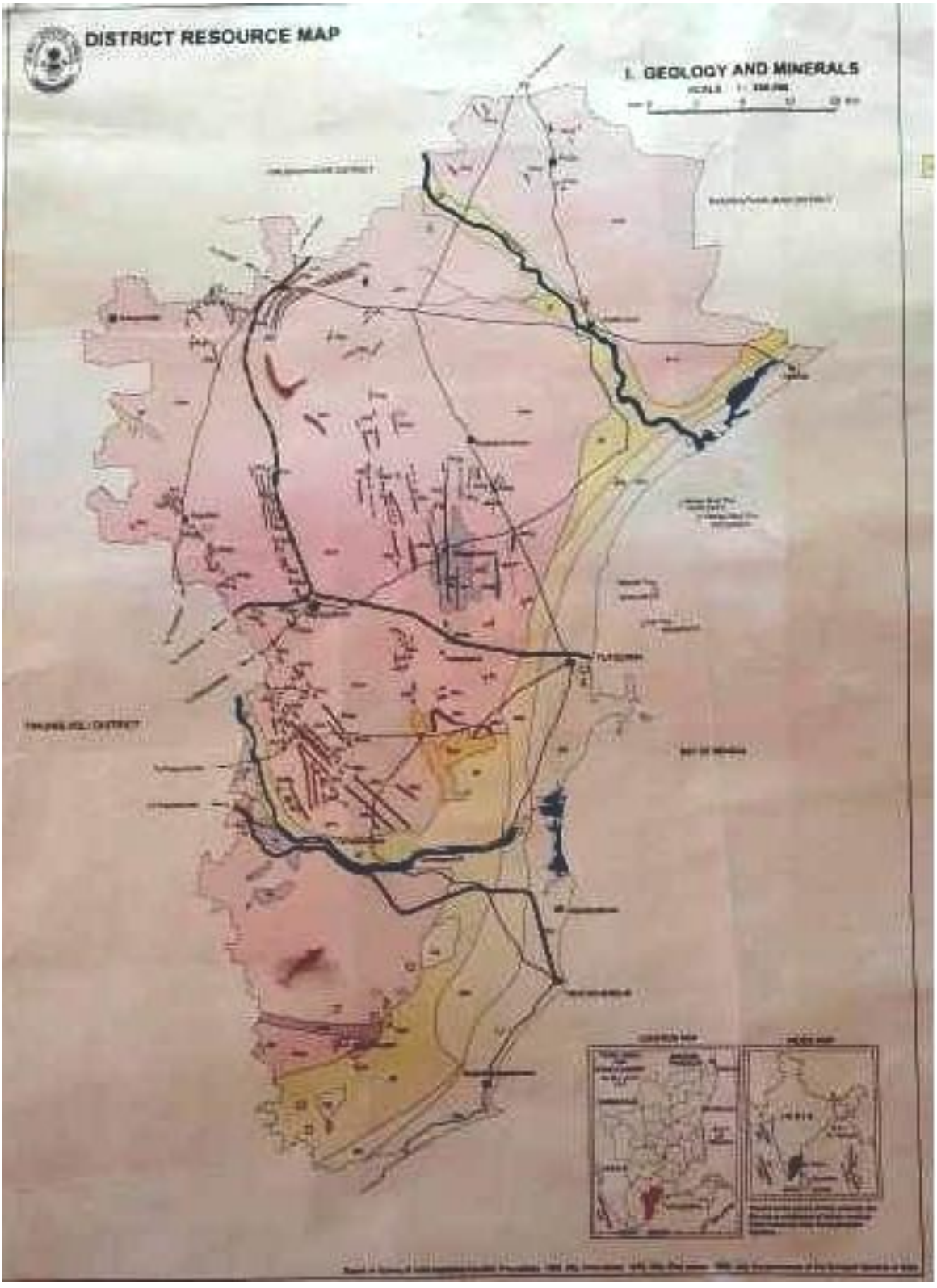


Fig.8 DISTRICT RESOURCES MAP OF THOOTHUKUDI

13.0 - LIST OF LETTER OF INTENT (LOI) HOLDER IN THE DISTRICT ALONG WITH ITS VALIDITY

Sl.No	Name of the Mineral	Name of the lessee	Address & contact no. of letter of Intent holder	Letter of Intent Grant order No. & date	Area of mining lease to be allotted (Ha)	Validity of LOI	Use (Captive/ Non-capitive)	Location of the Mining lease	
								Latitude	Longitude
1	Rough Stone & Gravel	M/s. Shree Selvi chambers,	Panjapattiprivu, Sukkampatti Via, Theppakulathupatti, Dindigul District	Rc.No.237/G&M/ 2018 dt:25.09.2018	4.63.5	3 months	Non- captive	9°03'32.27"N to 9°03'39.38"N	77°43'53.32"E to 77°44'03.10"E
2	Rough Stone & Gravel	Ayyadurai,	S/o. Bahavathi, 26/12H, Polpettai, Thoothukudi	G.M.1/656/ 2014 dt:28.09.2018	1.49.5	3 months	Non- captive	8°51'59.40"N to 8°52'03.34"N	78°04'07.02"E to 78°04'12.60"E
3	Rough Stone & Gravel	P.Pungaraj,	S/o. Pandaram, 5/699, Nethaji Nagar, 3rd Street, Thoothukudi	Rc.No.331/G&M/ 2016 dt:28.09.2018	1.61.0	3 months	Non- captive	8°53'15.36"N to 8°53'19.80"N	78°04'26.28"E to 78°04'31.68"E
4	Rough Stone & Gravel	A. Shahul Hameed,	S/o. Abdul Samad, No.9, Kasim Bawa Thaikka Street, Kayathar village, Kovilpatti Taluk	Rc.No.70/G&M/ 2016 dt:28.09.2018	2.06.5	3 months	Non- captive	9°03'27.74"N to 9°03'32.36"N	77°43'54.31"E to 77°44'00.80"E
5	Rough Stone & Gravel	P.I. Jambert Maduram,	111/33E/12A, State Bank Colony, Thoothukudi	Rc.No.452/G&M/ 2018 dt:04.10.2018	4.18.0	3 months	Non- captive	9°07'05.48"N to 9°07'10.70"N	77°55'11.01"E to 77°55'21.67"E

6	Rough Stone & Gravel	I.Sankara lingam	S/o. Iyyappan, Door. No. 23/4, Keelathattaparai village, Thoothukudi	Rc.No.55/G&M/ 2015 dt:04.10.2018	1.55.5	3 months	Non- captive	8°48'41.3"N to 8°48'49.0"N	78°01'55.4"E to 78°01'59.9"E
7	Rough Stone & Gravel	S. Selvaraj,	S/o. A.L. Subba Naicker, Archankulam Village, N. Vadapatti post, Ettayapuram Taluk	G.M.1/455/ 2018 dt:05.10.2018	1.96.0	3 months	Non- captive	9°11'14.71"N to 9°11'21.37"N	77°59'11.30"E to 77°59'14.80"E
8	Rough Stone & Gravel	P. Jahir Hussian,	S/o. Peer Mohammad No.11A, Pavalar Street, Kayathar village, Kovilpatti Taluk	Rc.No.69/G&M/ 2016 dt:08.10.2018	3.94.5	3 months	Non- captive	8°57'42.26"N to 8°57'53.52"N	77°45'01.40"E to 77°45'08.02"E
9	Rough Stone & Gravel	S. Satheesh,	124, Vakkil Street, Kovilpatti	G.M.1/687/ 2017 dt:17.10.2018	4.95.0	3 months	Non- captive	9°09'00.12"N to 9°09'10.52"N	77°54'46.68"E to 77°54'58.57"E
10	Quartzite	B.Rajan,	No. 1242, 13th Main Road, Anna Nagar, (west), Chennai	Lr.No.8333/MMC.1/ 2018-1 dt:16.08.2018	3.86.0	3 months	Non- captive	8°53'52.56"N to 8°54'05.92"N	77°59'24.06"E to 77°59'33.90"E
11	Quartzite	R.R. Minerals	No. 1242, 13th Main Road, Anna Nagar, (west), Chennai	Lr.No.9288/MMC.1/ 2018-1 dt:03.09.2018	4.44.0	3 months	Non- captive	8°54'01.59"N to 8°54'09.60"N	77°59'27.42"E to 77°59'35.52"E
12	Quartzite	B.Rajan,	No. 1242, 13th Main Road, Anna Nagar, (west), Chennai	Lr.No.9291/MMC.1/ 2018-1 dt:23.08.2018	3.33.0	3 months	Non- captive	8°53'53.01"N to 8°54'03.66"N	77°59'30.18"E to 77°59'35.48"E
13	Quartzite & Gravel	M. Kanaga lakshmi	W/o. Thiru. Mohan 1/89, Governagiri Village, Ottapidaram Taluk	Lr.No.9149/MMC.1/ 2018-1 dt:30.08.2018	2.91.5	3 months	Non- captive	8°56'14.04"N to 8°56'20.36"N	78°01'20.04"E to 78°01'25.56"E

14.0 MINERAL RESOURCES OF THOOTHUKUDI DISTRICT

Rock types found in the area belong to the Khondalite and Charnockite groups and Migmatite Complex of Eastern Ghats Super group, which are unconformably overlain by Tertiary and Quaternary sediments. Garnet-biotite-sillimanite gneiss, quartzite, calc-granulite**.** and limestone of Khondalite group with epidiorite, occurring as narrow linear bands. Charnockite group is represented by acid variants. These rock types occur as xenoliths within the Migmatite Complex occupying a major part of the area, comprising medium grained hornblende-biotite gneiss and garnet-biotite gneiss. Grey and pink granite represent the last phase of granitic activity and occur as concordant intrusive bodies.

14.1 MINOR MINERALS

Rough stone, jelly, sand, gravel, clay, earth and granite are the minor minerals and leases are granted for quarrying of the said minerals in Thoothukudi District. Rough stone, jelly is used for construction of buildings, road, etc. Clay and earth are used for manufacturing bricks and filling materials. Gravel is used to form the road and filling purpose. Gravel and Silt are Most part of the Thoothukudi District covered with Red/ black earth and gravel. The reservoirs viz., Papanasam Dam and major rivers Tamarabarani Chittar and Manimuthar Rivers are having silt deposits followed by Gravel. The Upper part of the river courses having black clayey earth with pale grey soil. Most of the water tanks and ponds in the District are having abundant quantity of earth and Gravel.

The Deposits of Kankar/Calc-tufa occur along many of the stream Courses and the adjacent flood plain in the semi-arid area.They are reported from panamparai, Sattankulam, Eluvarmukki, Pidaneri and 3.2 km SSE of Kayathar. The Deposits are Solaikudiyiruppu, E and NE of Kudiraimoli, Sirudaiyapuram and Sangivilai. Thoothukudi district has the two Major Source of River sand such as 1.Tamirabarani River and 2.Vaippar River. The sand deposits occur in the major river bed and their tributaries of various places.

Multi color dimension stone and rough stone/gravel, are noteble economic importance minerals of found in Thoothukudi District. Minor occurrences of Quartzite are also reported in the district. Mining activities based on rough stone (mostly charnockite) are majorly concentrated in Thoothukudi, Kovilpatti, Ettayapuram, Sathankulam, Ottapidaram Taluks in the district under operation for production of construction materials and earth fill as gravel.

There are approximately a quantity of 56,91,654 and 12,55,603.5 cbm of Roughstone and Gravel mineral available in Thoothukudi District as per the mining plan.

The multi color dimension stones occurring at Ottudanpatti in Kovilpatti Taluk, Erachi in Ettayapuram Taluk and Pasuvanthanai, Keelamangalam in Ottapidaram Taluk are recorded in the district which actively mined by private miners.

There are approximately a quantity of 32,965 cbm of Granite mineral available in Thoothukudi District as per the mining plan.

Quartz and Quartzite floats are noticed in and around Ottapidaram Village.

There are approximately a quantity of 10,621 MT and 24,784 MT of Quartz and Quartzite mineral available in Thoothukudi District as per the mining plan.

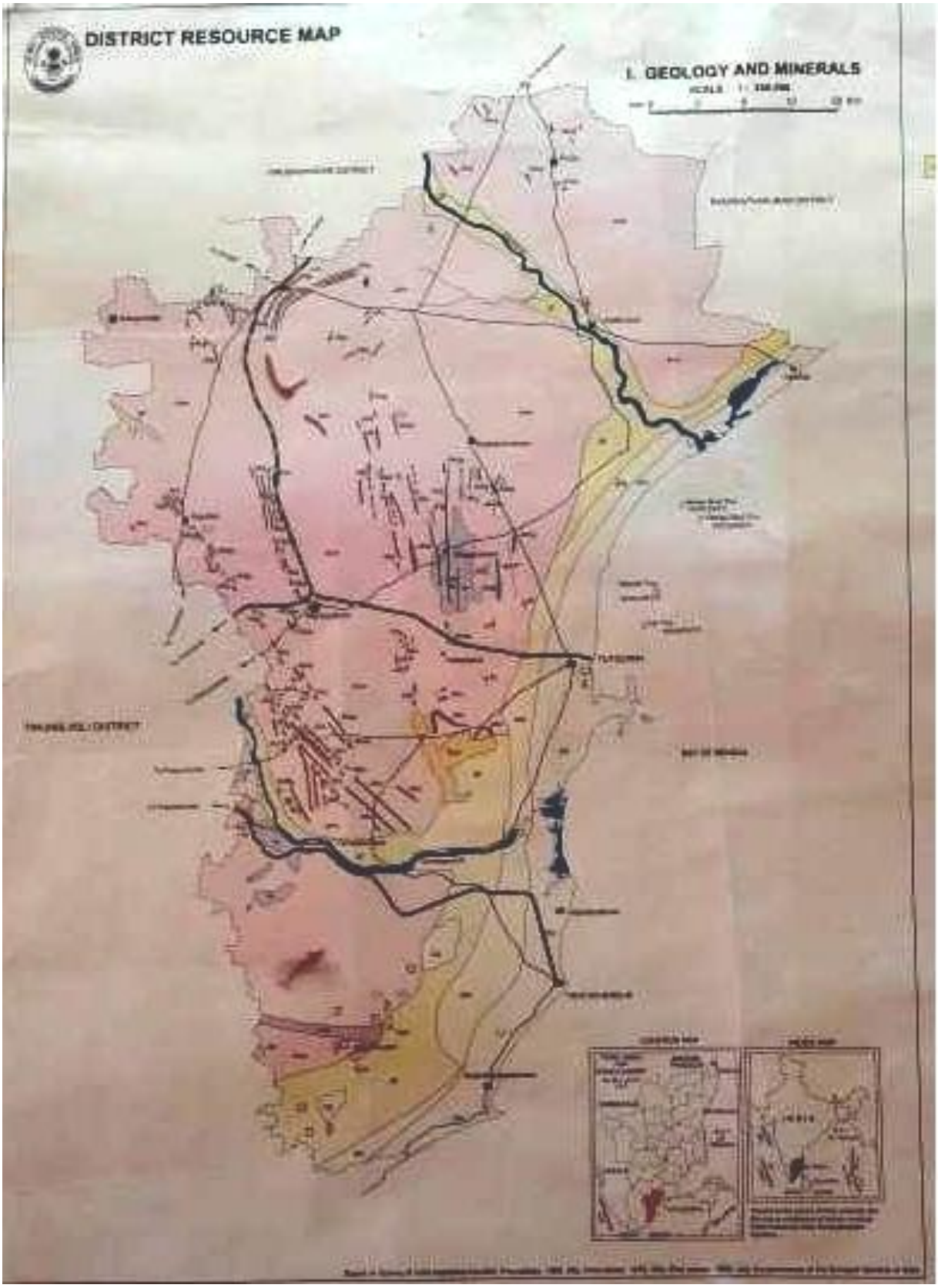


Fig.9 DISTRICT RESOURCES MAP OF THOOTHUKUDI

Chella ganesan- Quartzite and Quartz Quarry
Ottapidaram Village & Taluk

Krishnan-R.Stone and Gravel Quarrry
Therkkukarasari Village, Srivaikundam Taluk

H. Stalin Chinnappan- R.Stone and Gravel Quarry,
Meerankulam - I Village, Sattankulam Taluk

T. Sudalaikumar- R.Stone and Gravel Quarry,
Meerankulam I village Sattankulam Taluk

Tvl. R.R.Bule Metals- R.Stone and Gravel Quarry
Kombankulam Village, Sathankulam Taluk

15.0 - QUALITY / GRADE OF MINERAL AVAILABLE IN THE DISTRICT

Thoothukudi district represents a well-developed lithopackage of meta-sedimentary sequence inter banded with charnockite Group of rocks. The rock types exposed are of quartzite, calc-granulite, garnet-biotite-sillimanite gneiss, garnet quartzo-feldspathic gneiss and garnet-biotite-cordierite gneiss belonging to Khondalite Group of rock. Charnockite and pyroxene Granulite are the Charnockite Group. Hornblende-biotite gneiss belongs to Migmatitic Complex. Besides, basic intrusive (pyroxenite) and acid intrusive (granite) are noticed. The younger intrusive are represented by pegmatite and quartz veins. Evidence of development of incipient / patchy charnockite along the shear plane is noticed in the district along the Western Ghat high hills.

The Charnockite includes felsic and rich in quartz and microcline, others mafic and full of pyroxene and olinine, a special feature, recurring in many members of the group, is the presence of a strongly pleochroic, reddish or green orthopyroxene (formerly known as hypersthene).

Rocks of the Charnockite series may be named by adding orthopyroxene to the normal igneous nomenclature. Chemical composition of the charnockite available in the district is given below.

Chemical composition	Ranges in %
SiO_2	46-49
Al_2O_3	1-3
Fe_2O_3	1.16
FeO	21-33
MgO	12-20
MnO	0.3-0.8
CaO	0.04-2.0
Na_2O	0.02-0.50
K_2O	0.02-0.30

Gneiss is a high grade metamorphic rock. This means that gneiss has been subjected to more heat and pressure than schist. This banding has alternating layers that are composed of different minerals.

Chemical composition	Ranges in %
SiO_2	55
Al_2O_3	15-18
Fe_2O_3	2-3
MgO	2.5-3.5
CaO	1.5-2
Na_2O	0.50-1
K_2O	3.5-4.0
Specific Gravity	1.5 gm/cc
Bulk Density	2.7 gm/cc

The Multi – Coloured granite blocks are showing uniform quality throughout and hence quarried and marketed as a single variety.

Characteristics	Physical properties
Moisture Content%	0.15
Dry Density	2.60 to 2.68
Apparent Resistivity	2.75
Water absorption	0.50
Porosity	1 to 2
Hardness	6 to 7

The Minor Minerals are already been used for various construction and filling purposes as these are fit for those purposes.

Gravel is a loose aggregation of rock fragments. Gravel is classified by particle size range and includes size classes from granule – boulder sized fragments. Gravel is categorized into granular gravel and pebble gravel. ISO 14688 grades gravels as fine medium and coarse with ranges 2mm to 6.3mm to 20mm to 63mm.

Since the entire mined out mineral Quartz and Quartzite is been utilized by the Ceramic and Refractory manufacturing industries and pulverising units. The grade is been already approve and fit for Refractory and Ceramic industries.

The term ‘quartz’ is often referred toas a synonym for silica. Silica (SiO_2) is one of the ubiquitous materials in the earth’s crust. Quartz, quartz crystals quartzite silica sand sand (others) and modeling sand are all coined together in one generic name ‘silica minerals’. This is because all these commodities are essentially crystalline silicon dioxide (SiO_2) with

variations mostly related to their crystalline structure and presence of minor or trace impurities. Silica occurs in several forms giving rise to different varieties.

Chemical Composition	Range %
SiO_2	92-98
Al_2O_3	0.5-1.8
Fe_2O_3	0.03-0.8
LOI	0.8-3

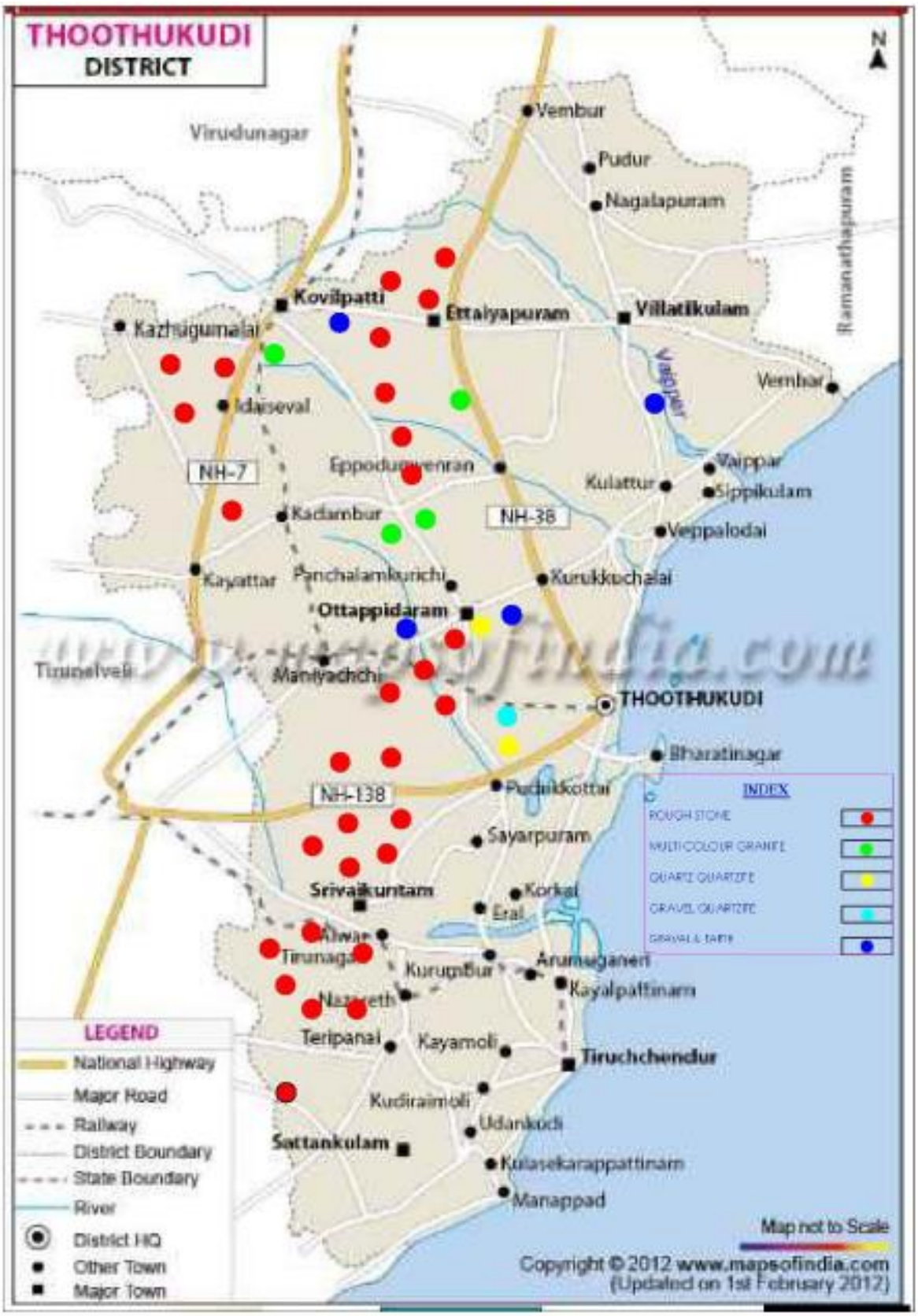
16.0 - USE OF MINERAL

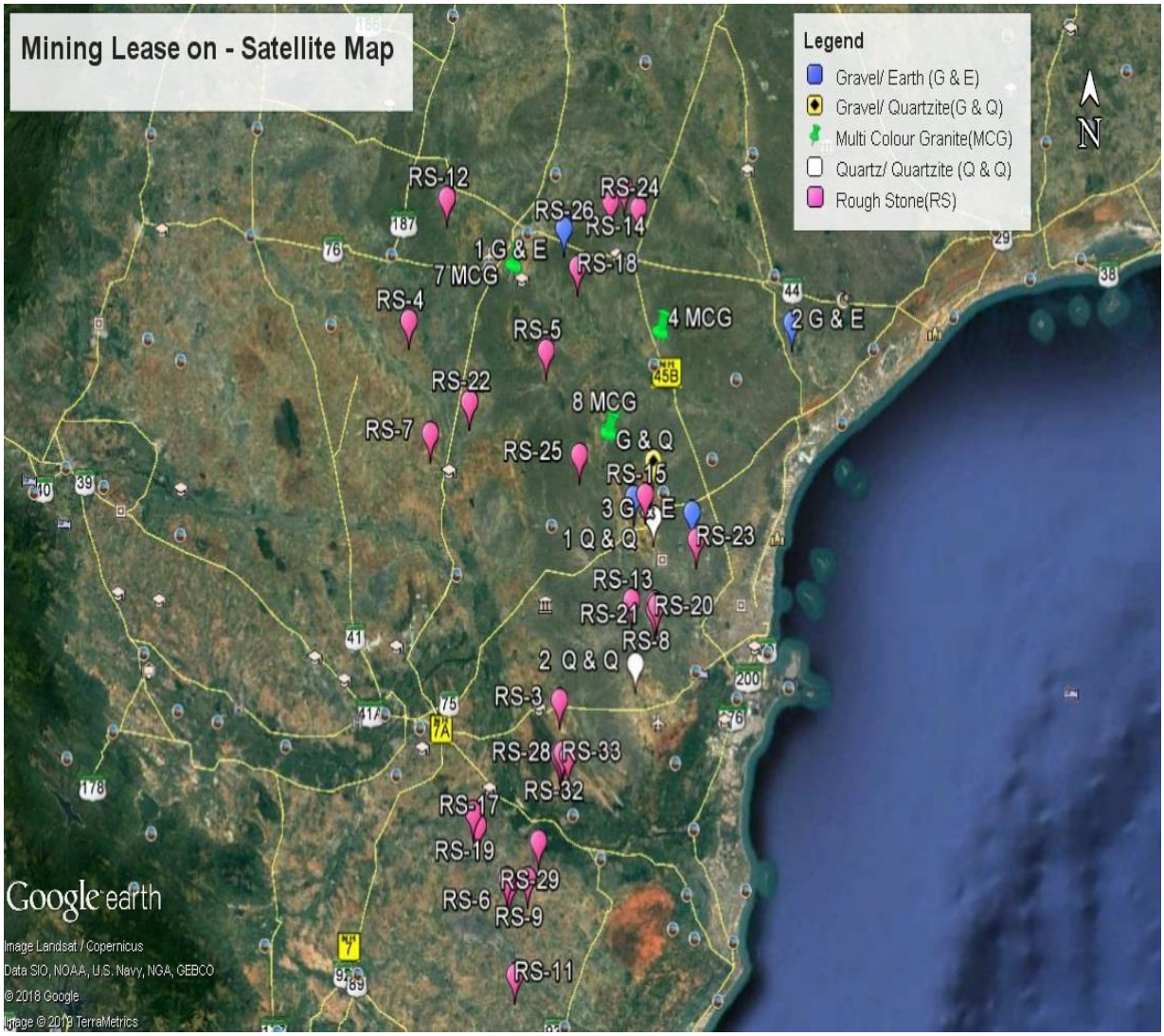
The garnetiferous quartzo feldspathic gneiss in Kovilpatti area is being extensively used for dimension stone. The charnockite and granitic gneiss are extensively quarried for road metal, fencing blocks and building stones. Apart from this, Roughstone are used for the manufacturing of M-Sand and cursher products like, Jelly of various sizes, dust etc., The Gravel / Earth are used for filling purposes. Quartz is an important industrial mineral which finds application in glass, ceramic and electronic industries. A small amount of quartz is used in abrasives and in paper industries. Quartzite is been utilized by the Ceramic and Refractory manufacturing industries and pulverising unit.

17.0 - DEMAND AND SUPPLY OF THE MINERAL IN THE LAST THREE YEARS

There is no production of granite during the last one year as all the quarries are inoperative. In respect of Thoothukudi District, there is an increase in the production of Rough stone / gravel minerals, due to the high demand for the on-going construction works in and around the District. Quartzite production is also increase due to the high demand.

18.0 - MINING LEASES MARKED ON THE MAP OF THE DISTRICT




Mining Lease on - Satellite Map
Legend
Gravel/ Earth (G & E)
Gravel/ Quartzite(G & Q)
Multi Colour Granite(MCG)
Quartz/ Quartzite (Q & Q)
Rough Stone(RS)
N
RS-12
RS-24
RS-26
RS-14
1 G & E
7 MCG
RS-18
RS-4
RS-5
4 MCG
2 G & E
RS-22
8 MCG
RS-7
G & Q
RS-25
RS-15
3 G & E
1 Q & Q
RS-23
RS-13
RS-21
RS-20
RS-8
2 Q & Q
RS-3
RS-28
RS-33
RS-32
RS-17
RS-19
RS-29
RS-6
RS-9
RS-11
Google earth
Image Landsat / Copernicus
Data SIO, NOAA, U.S. Navy, NGA, GEBCO
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19.0 DETAILS OF THE AREA WHERE THERE IS A CLUSTER OF MINING LEASES VIZ., NUMBER OF MINING LEASES, LOCATION (LATITUDE & LONGITUDE)

SI.No	No.of Quarries	Name of Village and Taluk	Location	
			Latitude	Longitude
1.	6	Padmanabhamangalam Village Srivaikundam Taluk	N 08° 39' 44" to N 09° 39' 54"	E 77° 54' 27" to E 77° 55' 24"
2.	2	Therkkukaraseri Village Srivaikundam Taluk	N 08° 36' 06.05" to N 08° 36' 43.76"	E 77° 48' 18.25" to E 77° 48' 33.57"
3.	2	Meerankulam -1 Village Sattankulam Taluk	N 08° 32' 45.07" to N 08° 33' 08"	E 77° 50' 33" to E 77° 51’ 02.94"

20.0 VALLANADU BLACK BUCK SANCTUARY

The Vallanadu area was declared as Sanctuary as per G.O.Ms.No.1028 Forest & Fisheries Department dated 28.09.1987. This Sanctuary is located in Vallanadu village of Srivaikundam Taluk of Thoothukudi in district in Tamil Naduon Tirunelveli-Thoothukudi road at a distance of 16 kilometers from Tirunelveli town. Latitude 80 39’45’’ North to 80 44’00’’ North Longitude 770 54’ 45’’ East to 770 57’ 10’’ East .Vallanadu Blackbuck Sanctuary is a scrub forest area that is spread over 16.41 sq km.This sanctuary is situated in the Thoothukudi District. Thoothukudi District is situated in the extreme southeastern corner of Tamil Nadu. It is surrounded by the districts of Tirunelveli, Virudhunagar, and Ramanathapuram, and southeast by Gulf of Mannar and on the west and south-west by Tirunelveli District. The city is also known as "Pearl City".Thuthukudi is a seaport city, which serves southern Tamil Nadu, including the inland cities of Coimbatore, Madurai and Tirunelveli. It is one of the oldest cities in India.

The details of quarries lies within the Eco-Sensitive Zone from the boundary of the VALLANADU BLACK BUCK SANCTUARY is furnished in the prescribed proforma.

Sl. No.	Village	S. No / Name of the Quarry	Actual Distance from the boundary of the wildlife Sanctuaries / Birds Sanctuaries area / National Park	Name of the wildlife Sanctuaries / Birds Sanctuaries / National Park	Recommending distance for fixing Eco – Sensitive Zones from the boundary
Rough Stone Quarries					
1.	Kattalan kulam village Thoothukudi Taluk	418/1A (P) 3.80.0 Hects Thiru. S. Shanmugavel, S/o. Sivasamy, Door No. 1/136, Church Street, Kattalankulam Village, Thoothukudi		Vallanadu Black Buck Sanctuary	0 to2 Kms
2.	Keela Vallanadu Village, Srivaikundam Taluk	619/2 4.94.0Hects Thiru S.Murugan, S/o.Thiru.Siriyapillai Nadar, No.308, Bypass Road, Pudukottai, Thoothukudi			0 to2 Kms
3.	Padmanabam angalam, Village, Srivaikundam Taluk	801 1.67.0Hects Thiru S. Sudharasan, S/o. Soosaiah, No.16/C/1, Cruzpuram, Thoothukudi			0 to2 Kms
4.	Padmanaba mangalam Village Srivaikundam Taluk	802 1.93.5Hects Thiru T.Vijay, S/o. Thippursian, Victoria Extension Road, Thoothukudi			0 to2 Kms
5.	Srivaikundam Taluk Kalvay Village	367/1B, 367/2 and 367/3 2.53.0Hects Thiru. Murugan, S/o. Thiru. Muthusamy Thevar 135, North Street, Vellur Village, Srivaikundam			0 to2 Kms
6.	Padmanaba mangalam Village Srivaikundam Taluk Thoothukudi	794/1 1.79.0Hects Thiru K. Kathir Kamaraj, S/o.P.Karuppasamy, No.37, Trust Cross Street, Mandavelipakkam, Chennai-28			0 to2 Kms

7.	Padmanaba mangalam Village Srivaikundam Taluk Thoothukudi	794/3 1.78.5Hects Thiru K. Kathir Kamaraj, S/o.P.Karuppasamy, No.37, Trust Cross Street, Mandavelipakkam, Chennai-28			0 to2 Kms
8.	Srivaikundam Taluk – Padmanabam angalam Village	717 (p) & 725 (p) 4.91.5Hects M/s. Shri Venkateswara Construction Materials & Industries, 189, Palayamkottai Road, Thoothukudi 628 008.			0 to2 Kms
9.	Srivaikundam Taluk – Padmanabam angalam Village	739/1 1.84.0Hects Thiru J Raja Jebadoss S/o M Jeyasundara pandian, 3/442-4, Therri Road, Puducottai			0 to2 Kms

21.0 IMPACT ON THE ENVIRONMENT DUE TO MINING ACTIVITY:-

Environmental impact on granite quarrying can be broadly classified in to two categories:

1. Environmentaldegradation
2. Environmental pollution

ENVIRONMENTAL DEGRADATION: Degradation of topography, fauna and flora in variably takes place on granite quarrying. While developing infrastructure, vegetation cover is destroyed, topography degraded and fauna and flora affected. If it is rubber plantation in Kerala, it is mango grooves in Tamil Nadu that is destroyed. Natural lakes, nalla beds have become the convenient locito dump the over burden. Filling up of the natural drainage channels creates problem in the water way system. Degradating the topography leads to destruction of vegetative cover, dry air circulation, non precipitation, choking of natural drainage and finally to extreme drought. This is what i happening at presentin excessively quarried areas for which the reason attributed is failure of monsoon.

ENVIRONMENTAL POLLUTION: Air, water and noise pollution, ground vibration from blasting and generation of solid waste are some of the impacts of granite quarrying on environment which have extreme destructive consequences. Silicosis is the prevalent disease that affects majority of the quarry workers and the adjoining villages. In addition to the natural water sources getting contaminated with particulates, deepening of quarry depth intercepts ground water table. Natural topo graphic gradient is upset with concomitant change in drainage pattern. Deepened out quarries have become overnight perched aquifers draining away water from all the surrounding highlands. Noise pollution, over and above those from quarrying equipment get saccentuated from increase duse of jet burners (flames cutters). Ground vibration on account of blasting are at times worst, simulating seimic waves, and causing damages to the buildings nearby. Solid waste is non-biodegradable and slow mechanical disintegration of which leads to environment of silica, sodium, potassium and calcium in soils. Soils become unproductive. Inadequate space for dumping solid wastes near quarries leads to dumping of them on either side of the road. Granite dumps on road sides impart not only aesthetic displeasure but also ugly sights and potential danger for traffic hazards.

22. REMEDIAL MEASURE TO MITIGATE THE IMPACT OF MINING ON THE ENVIRONMENT

The following remedial measures to be taken during mining

22.1 REMEDIAL MEASURES TO MITIGATE AIR POLLUTION

- Water sprinkling on mineral transport road from the mines to the main road
- Black topping of the main transportation roads to the possible extent.
- Avoiding crowding of trucks by properly spacing them to avoid the concentration of dust emission at any time
- Covering the trucks by tarpaulin sheets during ore transportation
- Proper maintenance of HEMM to minimize gaseous emission
- Imparting sufficient training to operators on safety and environmental parameters
- Development of green belt / plantation around mine, along the roads, backfilled area in various undisturbed areas within the mine lease areas etc.,

22.2 REMEDIAL MEASURES TO MITIGATE WATER POLLUTION

- Industrial effluent treatment systems wherever necessary to be introduced and maintained properly.

- Safety barriers to be provided for all water bodies and no mining activities should be carried out in the safety barrier area.
- Mitigative measures like construction of garland drains formation of earth bunds to be followed in the waste dumping areas to avoid wash off.
- Domestic effluents to be treated in scientific manner
- Required statutory clearances to be obtained and all precautionary measures to be adopted wherever pumping of ground water is involved.

22.3 REMEDIAL MEASURES TO REDUCE NOISE & VIBRATION

- Planting rows of native trees around mine, along the roads, other noise generating centres to act as acoustic barriers.
- Sound proof operator's cabin for equipment may lead to less noise generation.
- Proper and regular maintenance of equipment may lead to less noise generation
- Air silencers of suitable type that can modulate the noise of the engines of machinery to be utilized and will be maintained effectively.
- Providing in-built mechanism for reducing sound emissions.
- Providing ear muff's to workers exposed to higher noise level and to those persons operating or working close to any machine.
- Conducting regular health check-up of workers including Audiometric test for the workers engaged in noise prone area.

22.4 REMEDIAL MEASURES TO REDUCE IMPACT ON LAND ENVIRONMENT:

Scientific reclamation measures to be adopted to reduce the impact of land environment due to mining.

22.5 REMEDIAL MEASURES TO REDUCE IMPACT ON BIOLOGICAL ENVIRONMENT

- Necessary mitigative measures like dust suppression, proper maintenance of equipments, black topping of roads etc., to be carried out to prevent dust generation & any further impact on the vegetation.
- Conservation plan for schedule –I species if any to be prepared in consultation with the Forest Department and the proposals given in the conservation plan to be strictly implemented.
- Effluents generated in the mining areas to be treated properly.

23. RECLAMATION OF MINED OUT AREA (BEST PRACTICE ALREADY IMPLEMENTED IN THE DISTRICT, REQUIREMENT AS PER RULES AND REGULATIONS, PROPOSED RECLAMATION PLAN)

The reclamation of mined out lands by simultaneous backfilling and development of plantation in the backfilled areas will be the best practice of reclamation.

24. RISK ASSESSMENT & DISASTER MANAGEMENT PLAN

Risk Assessment and Disaster Management plan in connection with mining and allied operations should be spelt out in detail to cover possible dangers /risks/explosions/accidents etc., likely to arise from the project operations including onsite and off-site emergency plans to meet the disastrous situations if any.

The management is able to deal with the situation efficiently to reduce confusion keeping in view of the likely sources of danger in the mine.

1) OUTLINE OF DISASTER MANAGEMENT PLAN :-

The purpose of disaster management plan is to restore the normalcy for early resumption of mining operation due to an unexpected, sudden occurrence resulting to abnormality in the course of mining activity leading to a serious danger to workers or any machinery or the environment.

2) SYSTEM OF COMMUNICATION:-

An internal communication system should be provided. Telephone nos. and addresses of adjoining mines, rescue station, police station, Fire service station, local hospital, electricity supply agency and standing consultative committee members should be properly updated and displayed.

3) CONSULTATIVE COMMITTEE:-

A standing consultative committee will be formed under the head of Mines. The members consists of Mines manager /safety officer / medical officer / public relation officer/Foreman/ and environmental engineer.

4) FACILITIES & ACCOMMODATION:-

Accommodation and facilities for medical centre, rescue room and for various working groups shall be provided. Regular checking of these facilities shall be undertaken.

5) FIRST AID & MEDICAL FACILITIES:-

The mine management should be having first aid / medical centre for use in emergency situation. All casualties should be registered and should be given first aid. The centre should have facilities for first aid & minor treatment, resuscitation, ambulance and transport. Proper telephone / wireless should be provided for quick communication with

hospitals where the complicated cases are to be referred. Regular checking of these facilities shall be undertaken by the doctor and the in charge of the first aid room.

6) STORES AND EQUIPMENT :-

A detailed list of equipment available, its type & capacity and items reserved for emergency should be maintained.

7) TRANSPORT SERVICES:-

A well defined transport control system should be provided to deal with the situation.

8) FUNCTIONS OF PUBLIC RELATIONS GROUP:-

Liaison with representatives of the mine workers is required to ameliorate the situation of panic, tension, sentiments, grievances and misgivings created by any disaster. Management is required to ameliorate the injured, survivors and family members of affected persons by providing material, finance, moral support and establishing contact with relatives of victims. The consultative committee formed, especially the nominated public relation officer shall look into these aspects.

9) SECURITY :-

Manning of security posts is very essential during the disaster management.

10) CATERING & REFRESHMENT :-

Arrangement will be made for the victims, rescue teams and others.

25. DETAILS OF OCCUPATIONAL HEALTH ISSUE IN THE DISTRICT (LAST FIVE –YEAR DATA OF NUMBER OF PATIENTS OF SILICOSIS & TUBERCULOSIS IS ALSO NEEDS TO BE SUBMITTED)

THE DETAILS OF NUMBER OF PATIENTS TREATED FOR SILICOSIS AND TUBERCULOSIS FOR THE LAST FIVE YEARS IN THE DISTRICT IS GIVEN BELOW:

Sl.No.	Year	Number of patients treated for silicosis	Number of patients treated for Tuberculosis
1	2017	NIL	
2	2016	NIL	
3	2015	NIL	
4	2014	NIL	
5	2013	NIL	

26. PLANTATION AND GREEN BELT DEVELOPMENT IN RESPECT OF LEASES ALREADY GRANTED IN THE DISTRICT

It is necessary to develop Green belt in and around the polluted site with suitable species to reduce the air pollution effectively. Implementation of afforestation program is of paramount importance. In addition to augmenting existing vegetation, it also checks soil erosion, make the ecosystem more complex and functionally more stable and make the climate more conductive. Simultaneous backfilling method will be followed in most of the mining areas. During the operations, the plantation will be proposed and will be carried out on the safety barrier areas and also on the mined out and backfilling areas.

27. ANY OTHER INFORMATION

Nil

24/05/19

ASSISTANT DIRECTOR (i/c)
DEPT.OF GEOLOGY AND MINING,
THOOTHUKUDI

DISTRICT COLLECTOR,
THOOTHUKUDI