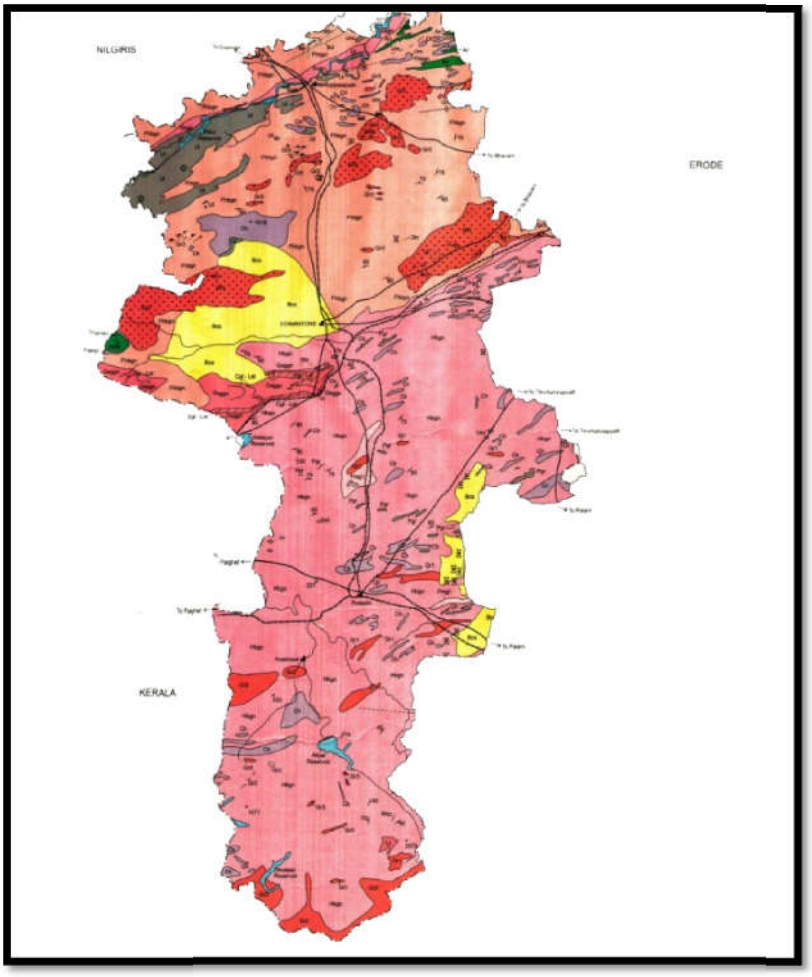
DISTRICT SURVEY REPORT FOR GRANITE COIMBATORE DISTRICT



(Prepared as per Gazette Notification S.O.3611 (E) Dated 25.07.2018 of Ministry of Environment, Forest and Climate Change MoEF& CC)

MAY 2019

DISTRICT SURVEY REPORT FOR GRANITE
COIMBATORE DISTRICT

1. Introduction:-

In pursuance to the Gazette Notification, Ministry of Environment, Forest and Climate Change (MoEF& CC), the **Government of India Notification No. S.O.3611 (E) dated 25.07.2018** laidprocedure for preparation of District Survey Report of minor minerals other than sand mining or river bed mining. The main purpose of preparation of District Survey Report is to identify the mineral resources and developing the mining activities along with other relevant data of the District.

Coimbatore District is the Western part of Tamilnadu, bordering the state of Kerala. It is surrounded by the Western Ghats mountain range on the West and north, with reserve forests and the (Nilgiri Biosphere Reserve) on the northern side. The Noyyal River runs through Coimbatore and forms the Southern Boundary of the old city limits. The city sits amidst Noyyal's basin area and has an extensive tank system fed by the river and rainwater. The eight major tanks / wetland areas of Coimbatore are Singanallur, Valankulam, UkkadamPeriyakulam, Selvampathy, Narasampathi, Krishnampathi, Selvachinthamani, and Kumaraswami tanks. Sanganurpallam, KovilmeduPallam, Vilankurichi – SinganallurPallam, KarpeayanKoilPallam, Railway feeder roadside drain, Tiruchy – Singanallu check drain and Ganapathy pallam are some of the streams that drain the city.

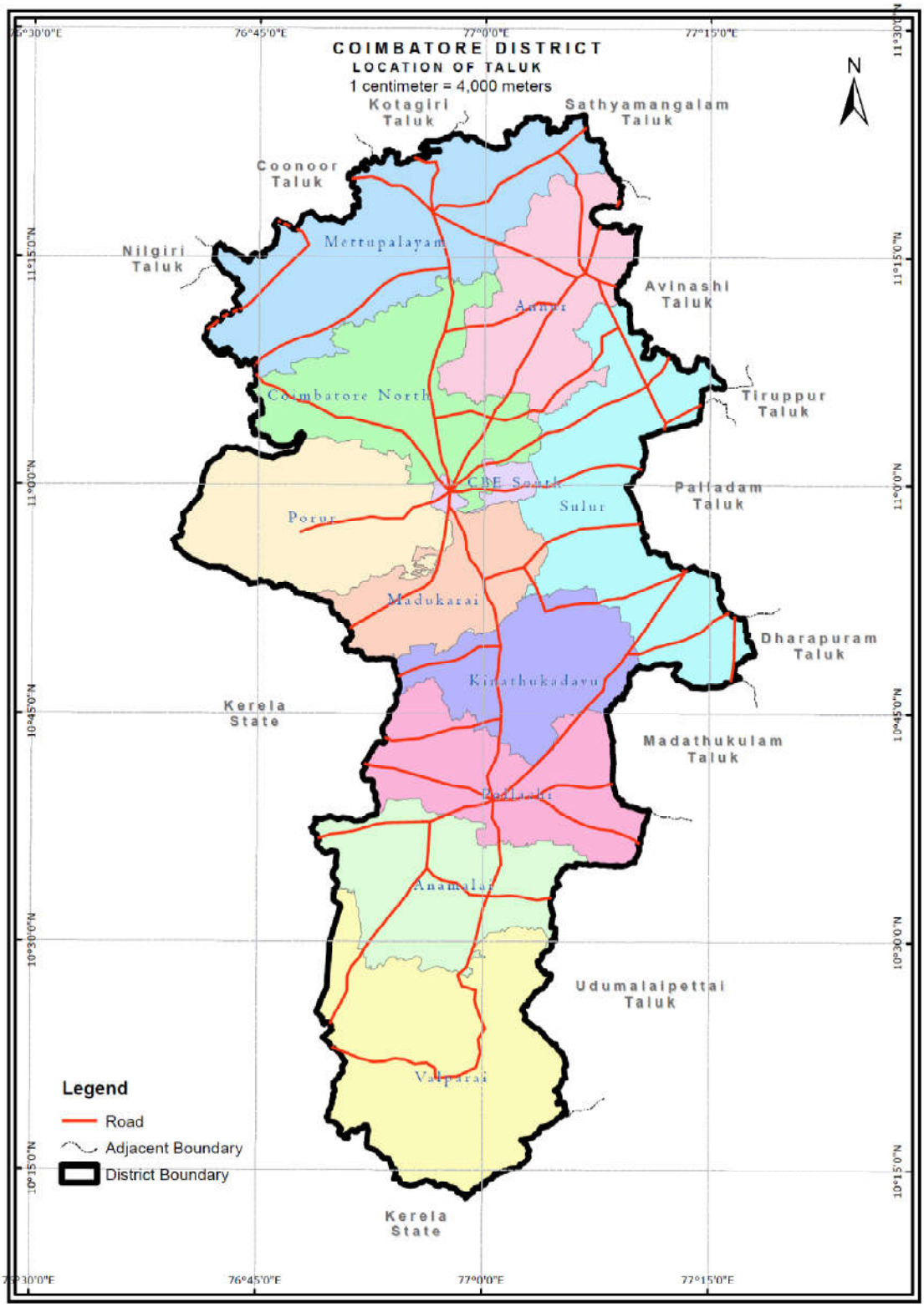
The district borders Palakkad district of Kerala in the west, Nilgiris district in the north, Erode district in the northeast and east, Idukki district of Kerala in the south and Tiruppur district in the East. The district has an area of 7,649 square kilometers. The southwestern and northern parts are hilly, part of the Western Ghats, and enjoys pleasant climate all throughout the year. To the west is the Palghat Gap, the only major pass in the longstretch of the ghats abutting Tamil Nadu and Kerala. The Palghat Gap, connecting Coimbatore city and Palakkad city, serves as an important transit link for both the states. The rest of the district lies in the rain shadow region of the Western Ghats and experiences salubrious climate most parts of the year. The mean maximum and minimum temperatures for Coimbatore city during summer and winter vary between 35 °C to 18 °C.

The average annual rainfall in the plains is around 700 mm with the northeast and the southwest monsoons contributing to 47% and 28% respectively to the total rainfall.

The major rivers flowing through the district are Bhavani, Noyyal,Kousika river and Aliyar. The siruvani dam is the main source of drinking water for Coimbatore city and is known for its tasty water. Waterfalls in Coimbatore District include Chinnakallar Falls, Monkey Falls, Sengupathi Falls, Siruvani Waterfalls, Thirumoorthy Falls and Vaideki Falls.

DIVISION	TALUK	FIRKA'S	REVENUE VILLAGES
Coimbatore South	Coimbatore South	16	5
	Perur		24
	Madukkarai		19
	Sulur		41
Coimbatore North	Coimbatore North	10	25
	Annur		30
	Mettupalayam		19
Pollachi	Pollachi	12	65
	Kinathukadavu		35
	Valparai		1
	Anaimalai		31
Total	**11**	**38**	**295**

COIMBATORE DISTRICT MAP



2. Overview of Mining Activity in the District:-

Mining activities carried out in the District is Opencast Semi Mechanized/ Mechanized and Manual method.

Minerals of economic importance found in Coimbatore District are Limestone, Gypsum, Kankar, Soapstone, Quartz, Feldspar,Colour Granites (Dimensional stones), Rough stone, Gravel and Brick Earth. Mining activities in respect of Gypsum, Kankar, Soap stone, Quartz and Feldspar are very less. However, numerous Rough Stone quarries are under operation for production of construction materials and earth fill (Gravel) in Mettupalayam, Pollachi, Sulur, Madukkarai, Kinathukadavu areas in the district. In addition to above, Limestone which is the main cement raw material, is mined by ACC Limited in Madukarai, Mavuthampathy (BolampattiRange) area of Madukarai Taluk.

3.General Profile of the District:-

The third largest city of the state, Coimbatore,is one of the most industrialized cities in Tamil Nadu, known as the textile capital of South India or the Manchester of the South, the city is situated on the banks of the river Noyyal, Coimbatore existed even prior to the 2nd or 3rd century AD by Karikalan, the first of the early Cholas. Among its other great rulers were Rashtrakutas, Chalukyas, Pandyas, Hoysalas and the Vijayanagara kings. When Kongunadu fell to the British along with the rest of the state, its name was changed to Coimbatore and it is by this name that it is known today, except in Tamil, in which it is called Kovai.

In the rain shadow region of the Western ghats, Coimbatore enjoys a very pleasant climate all the year round, aided by the fresh breeze that flows through the 25 kms long Palakkad gap. The rich black soil of the region has contributed to Coimbatore's flourishing agriculture industry and, it is in fact the successful growth of cotton that served as a foundation for the establishment of its famous textile industry. The first textile mills came as far back as 1888 but there are now over a hundred mills. The result has been a strong economy and a reputation as one of the greatest industrial cities in South India.

There are more than 25,000 small, medium, large sale industries and textile mill. Coimbatore is also famous for the manufacture of motor pump sets and varied engineering goods. The development of Hydro electricity from the Pykara Falls in the 1930 led to a cotton boom in Coimbatore.

Coimbatore serves as an entry and exit point to neighbouring Kerala and the ever popular hill station of Udhagamandalam (Ooty). It is the disembarking point for those who want to take the Mountain train that runs from Mettupalayam, just 35 kms from Coimbatore. There are also regular bus services from Coimbatore to Ooty.

1.Geographical Position	North Latitude: Between $10^0$10' and $11^0$30' East Longitude: Between $76^0$40' and $77^0$30'
2. Area and Population	I. Geographical Area (Sq.Km) (As per village records): 3671: Reserve Forest (Sq.Km): 1052: Total Area (Sq.Km): 4723 II. CENSUS 2011 I.Population a) Total Population : 3458045 b) Male Population: 1729297 c) Female Population : 1728748 II. Literates a) Total Literates: 2635907 b) Male: 1394790 c) Female: 1241117

	III. Main Workers (Census 2011) a) Total Workers: 1567950 b) Male Workers: 1083125 c) Female Workers: 484825 d) Cultivators: 75411 e) Agricultural Labourers: 201351 f) Other Workers: 1291188 V.Languages Spoken in the District Tamil, Telugu, Hindi, English, Urdu, Malayalam, Kannada,Baduga, Panjabi, Rajasthani, Marathi, Gujarathi, Bengali, Nepali
3. Temperature	Plains – Maximum: 35.7 C Plains – Minimum: 19.5 C
4. Rainfall (In MM)	Normal – North East Monsoon: 328.9 South West Monsoon: 189.8 Actual – North East Monsoon: 341.1 South West Monsoon: 309.4
5.Agriculture	a) Total Cultivated Area (Ha); 177313; b) Net Area Sown (Ha): 173599; c) Area Sown more than once (Ha): 3714
6.**Rivers, etc.**	Name of the Rivers 1. Aliyar, 2. Nirar, 3. Sholayar, 4. Parambikulam, 5. Noyyal 6. Bhavani Name of the lakes: Nil Name of the Important Industries in the District. Textiles, 2. Hosiery, 3. Cement, 4. Motors & Pumps, 5. Wet Grinders,6. Solar heaters, 7. Safety Valves, 8. Stabilizers various type ofElectrical and Non Electrical machines, 9. Animal Feed, 10. SteelRolling, 11. Paper, 12. Sugar, 13. Flour Mills, 14. Dairy, 15. Soya, 16.Ancilliary, Machinery.

7. Medical and Health (Only Government.)	I. Modern Medicine a. No. of Hospitals: 14 b. Dispensaries: 58 c. Primary health Centers (Wings): 58 d. Urban Primary health Centre (Corp): 23 e. Health Sub Centres: 328 f. Other Medical institutions:- g. Beds in Hospitals and Dispensaries: 2189 h. Total Number of Doctors: 547 i. Total Number of Nurses: 1253 II) Indian medicine (Ayrvedic/Siddha/unani) a. Hospital:13 b. Dispensaries: 14 c. Total number of Doctors: 49 III) Homoeopathy a. Number of Hospitals: 1 b. Total Number of Doctors: 2
8. Revenue Administrative Divisions	a. Revenue Divisions:3 b. Revenue Taluks:11 c. Revenue Firkas:38 d. Revenue Villages:295
9. Local Bodies	a. Corporations: 1 b. Municipalities :3 c. Panchayat unions :12 d. Town Panchayats :37 e. Village Panchayats :228
10. Community Developments	a. District Panchayats: 1 b. No.of.Blocks Coverd:12 c. Population Covered : 839105

4. Geology of the District:-

Geologically, the district is covered by rocks belonging to Archean age comprising the khondalite group, Charnockite Group, migmatite group, Sathayamangalam group, Bhavani Group and Alkali complex of Proterozoic age and Recent to Late Plestocene rocks of Cainozoic age.

The Charnockite Group of rocks consisting of Charnockite, pyroxene granulites and associated magnetite quartzite, the Knodalite Group comprising gametiferous – sillimanite gneiss, calc-granulite, crystalline limestone, sillimanite quartzites and associated migmatitic gneisses. The rocks are restricted to the central and southern portions of the district, especially around Sulur, Madukkarai and Pollachi taluks.

The fissile homblende gneisses (Peninsular gneiss – younger phase) of Bhavani Group with enclaves of schistose, micaceous and amphibolitic rocks, fuchsitge – kyanite quartzites, ferruginous quartzite (Satyamangalam Group) intruded by a number of ultramafic and basic rocks and granites are seen in the Northern portions of the district especially around Mettupalayam and Northern areas of Coimbatore.

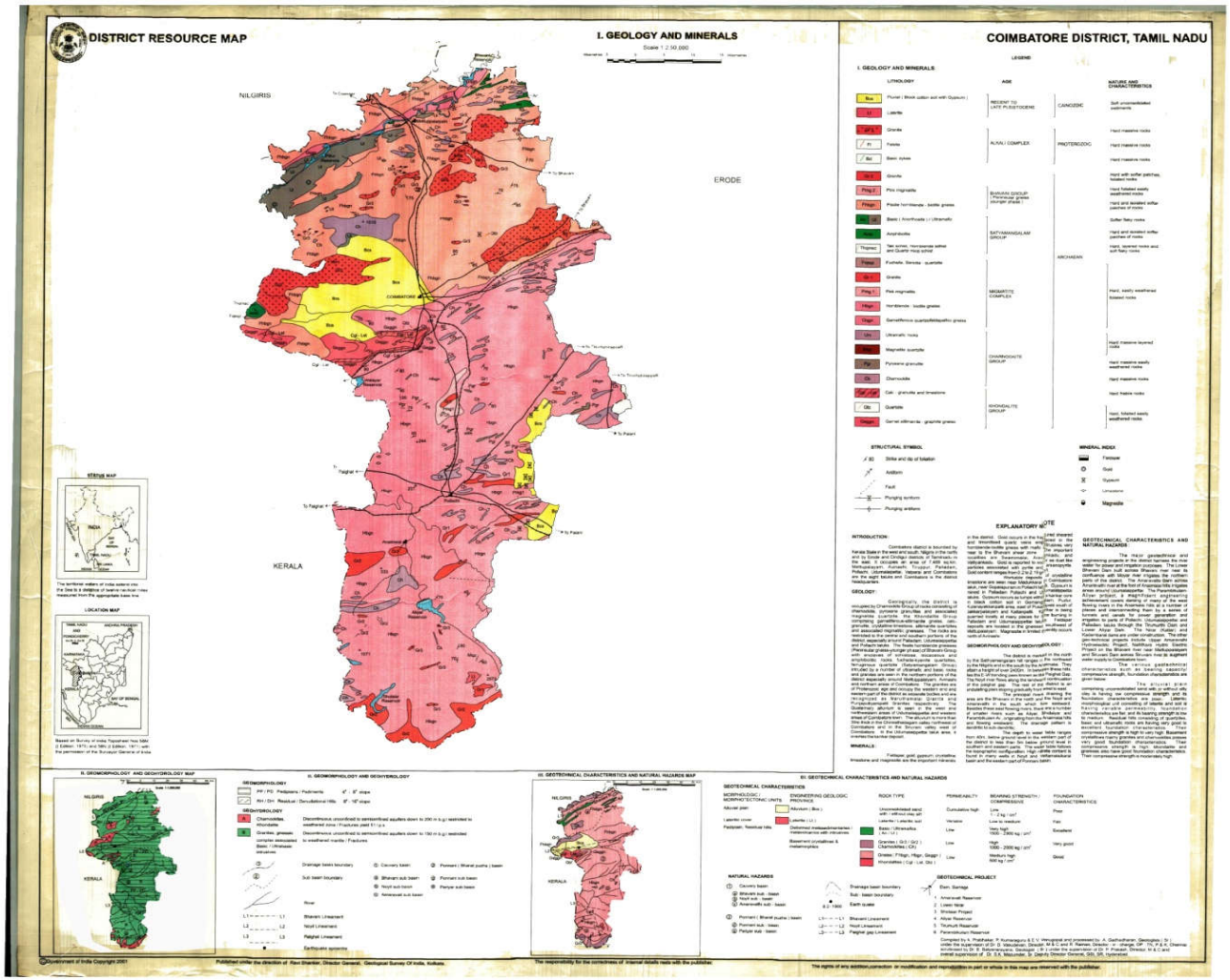
The granites are Proterozoic age and occupy the Western end and Eastern Part of the District as separate bodies and are recognized as Maruthamalai Granite and Punjapuliyampatti Granites respectively.

The quaternary alluvium is seen in the Western areas of Coimbatore town. The alluvium is more than 30m thick in the Chinnathadagam valley northwest of Coimbatore and in the Siruvani valley west of Coimbatore.

The generalized lithology of the District is as follow

LITHOLOGY	AGE	
Fluvial (Balck Cotton Soil with Gypsum) laterite	RECENT TO LATE PLEISTOCENE	CAINOZOIC
Granite (Gr 2), Felsite, Basic dykes	ALKALI COMPLEX	PROTEROZOIC
Granite (Gr3) Pink pegmatite Fessilehornblended – biotite gneiss	BHAVANI GROUP	ARCHAEAN
Basic/Ultra basic, Amphibolite,	SATHYAMANGALAM GROUP	
Granite (Gr1), Fuchsite, Sericite - quartizitehornblended – biotite gneiss, Garnetiferous, quartzofeldspathic gneiss	MIGMATITE COMPLEX	
Ultramafic rocks, Pyroxne granulite, Charnockite	CHARNOCKITE GROUP	
Calc – Granulite and Limestone, Quartzite, Garnet sillimanite – Graphite gneiss	KHONDALITE GROUP	

GEOLOGY MAP OF COIMBATOTRE DISTRICT



5. Drainage and Irrigation Pattern:-

i) Drainage

The Bhavani River which has its origin in the silent valley ranges in Kerala state and enters in to Coimbatore district about 25 km west of Mettupalayam and flows in a northeast direction. The river drains an area of 1056 Sq.km with in this district. The Noyil River has its origin in the Boluvampatty valley of the Vellingiri hills and comes to be called the Swami Mudiyar. Further south it is joined by the Periyar and Chinnar. The Palar, Aliyar and Upar which are the main steams of the river Ponnani are originating from the Anaimalai hills and flows in a north-northwest direction on the southern part of the district, the Aliyar and Thirumoorthy dams are located on Aliyar and Palar respectively. The Parambikulam and Sholaiyar streams, which are tributaries to the Periyar River has a southwesterly direction on the southwestern part of the district. Five surface reservoirs are located on this river, which form part of the ParambikulamAliyar project.

The city has a natural topography, sloping from north towards southand west towards east. The natural drains in Coimbatore are Sanganurpallam,Velangurichi-Singanallure drain, Ganapathy-Singanallur drain, KarperayanKoil drain, Koilmedu drain, Railway feeder road side drain, and Tiruchy-Singanallre check drain. There are eight major water bodies within thecorporation limits. Most of the tanks are used for irrigation purposes. Thetanks in Coimbatore city such as,

- Krishnampathi
- Selvampathy
- Kumarasamy tank
- Narasampathy tank
- Selvasinthamanikulam
- Valankulam
- Singanallur
- Muthannakulam

ii) Irrigation

Irrigation is the artificial application of water to the soil for normal growth of plants. Water is an important determinant factor for production of crops in agriculture sector. Intensive and extensive cultivation of land depends mainly on the availability of water. Medium and minor irrigation schemes are implemented in the state for augmenting the water supply for agriculture. The various sources of irrigation are canals, tanks, tube wells, ordinary wells, springs and channels. The following table shows the area irrigated in the District.

Irrigation of the Coimbatore District

AREA IN HECTARES.

Source	Number	Area Irrigated
I.Surface Water:		
1. Canals		
i) Government Canals	27	16554
ii) Private Canals	-	-
2. Tanks		
i) Large		-
ii) Small		-
3. Flow Irrigation		-
i) Major & Medium	-	-
ii) Minor		
4. Lift Irrigation:		
i) Major & Medium	-	-
ii) Minor	-	-
5. Ponds		
i) Lift Irrigation	-	-
iii) Minor	-	-
6. Other Sources:		
i) Lift Irrigation	-	-
ii) Flow Irrigation	-	
II Ground Water:		
1. Public	-	-
2. Private Tube Wells	17908	28876
3. Dug Wells		
i) With Pump sets	51041	71416
ii) Without Pumpsets	--	
Total	**68976**	**116846**

Source: ('G' Return) Deputy Director of Statistics, Coimbatore.

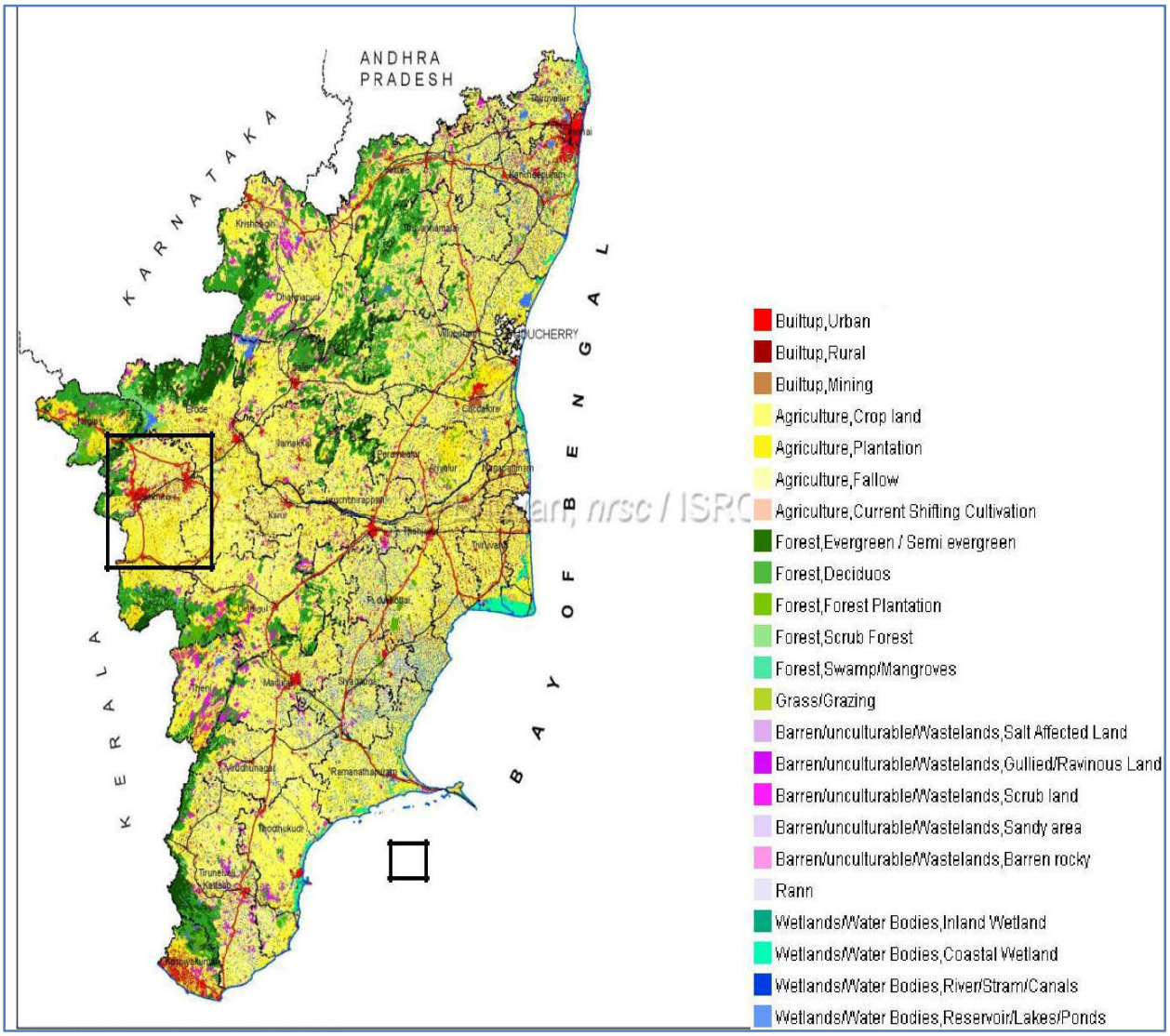
6. Land utilisation Pattern in the District: Forest, Agricultural, Horticultural, Mining, etc.,

The Geographical area of Coimbatore is 4,72,300ha. According to professional survey and also village records, the land use pattern during 1994is indicated in the following Table.

Land use Pattern Coimbatore Local Planning Area (Source Master Plan For Coimbatore Local Planning Area 1994)				
Sl. No.	**Use**	**Area (in Hect)**	**% to developed area**	**% of Total area**
1	Residential	6,527.36	80.57	61.85
2	Commercial	236.34	2.92	2.24
3	Industrial	440.00	5.43	4.17
4	Educational	660.45	8.15	6.26
5	Public and semi public	237.35	2.93	2.25
6	Agricultural	2,451.98	-	23.23
	Total	**10553.43**	**100.00**	**100.00**

Land use/land cover (LULC) changes are main issues of universal environment change. The Satellite remote sensing data with their monotonous nature have proved to be Rather useful in mapping land use/land cover decorations and changes with time. Quantification of such a changes is conceivable through GIS techniques even if the subsequent spatial datasets are of dissimilar scales or resolutions. Such studies have helped in considerate the dynamics of human happenings in space and time. Land use refers to man's activities.

LAND USE MAP OF TAMILNADU



7. Surface Water and Ground water scenario of the District

i) Ground water:-

Ground Water is found beneath the earth's surface and is an importantsource of water in most of the Districts in the State. Ground Water is withdrawn for Agriculture, Municipal and industrial use. The depth at which the ground water is found is called Ground water Table.

The depth to water level in the district varied between 1.54 and 39.03 m bgl during pre-monsoon (May 2006) and varied between 0.62 and 36.42 m bgl during post monsoon (Jan 2007). The seasonal fluctuation shows a rise in water level, which ranges from 0.34 to 10.88 m bgl. The piezometric head varied between 1.47 to 50.66 m bgl (May 2006) during pre monsoon and 0.34 to 51.02 m bgl during post monsoon (Jan 2007).

The thickness of the aquifer, weathered and jointed zones in this district is highly variable and varies from 10 to 40m below ground level. The inter granular porosity is essentially depending upon the intensity and the degree of weathering and fracture development in the bed rock and control the occurrenceand storage of groundwater. The resulting porosity, permeability, transmissivity, etc., decides the well yield. As 5 discussed earlier, it is noted that the thickness of weathering is more in gneissic formation and moderate in charnockite formations and accordingly the well yield and the aquifer parameters vary and are estimated through pumping tests. (Source : Central Ground Water Board - Data Centre – November 2008

ii) Surface water

The North western part and the Southern part of the Coimbatore is occupied by hill ranges of Western Ghats, namely Nilgiris hills in the North-West and Anamalai hills in the South.

The most part of the district forms parts of Cauvery river basin where as the South western part of the district comes under Ponnani River basin.

The major river courses which come under Cauvery basin are Bhavani, Noyyal and Amaravathi.

The South western part of the district is drained by tributaries of Ponnani, namely Palar, Aliyar and Uppar originating from Anamalai hills.

8. Rainfall of the District and Climate Conditions:-

i) Rainfall

Tamilnadu is exposed to both southwest and northeast monsoons. TheWestern Ghats acting as a barrier deprives full blast of Southwest monsoon winds.However, Southwest monsoon offers nearly 33 % of the rainfall received by theState, which helps cultivation. The State depends mainly the Northeast monsoonrains which are brought by the troughs of low pressures established in south Bay ofBengal between October and December. However, summer showers are also notuncommon. The average annual rainfall for the basinarea is 689.04 mm.

ii) Climatic Conditions.

The rest of the district lies in the rain shadow region of the Western Ghats and experiences salubrious climate most parts of the year. The mean maximum and minimum temperatures for Coimbatore city during summer and winter vary between 35 °C to 18 °C.

9(a). Occurrence of Granite Deposits in Coimbatore District:

In Coimbatore District pinkish yellow coloured Multi colour granite deposits are found in Kinathukadavu, Pollachi and Coimbatore North Taluks.At present five granite quarries are existing in the Coimbatore district. The deposits occurring in Bilichivillage of Coimbatore North and Jaminkottampatti village of Pollachi taluk are poor Quality and are not in Operation for past five years. The deposits occurring in sokkanur, Pottyandipurambu village of Kinathukadavu taluk are good Quality and are not in operation for the past two years for want of Environmental Clearence.

S.I.No.	Name of the Taluk	Name of the Village	No. of Existing Lease
1.	Kinathukadavu	Sokkanur, Pottayandipurambu	3
2.	Coimbatore North	Bilichi	1
3.	Pollachi	Jaminkottampatti	1

9(b). Details of mining leases in the Districtas per the following format:-

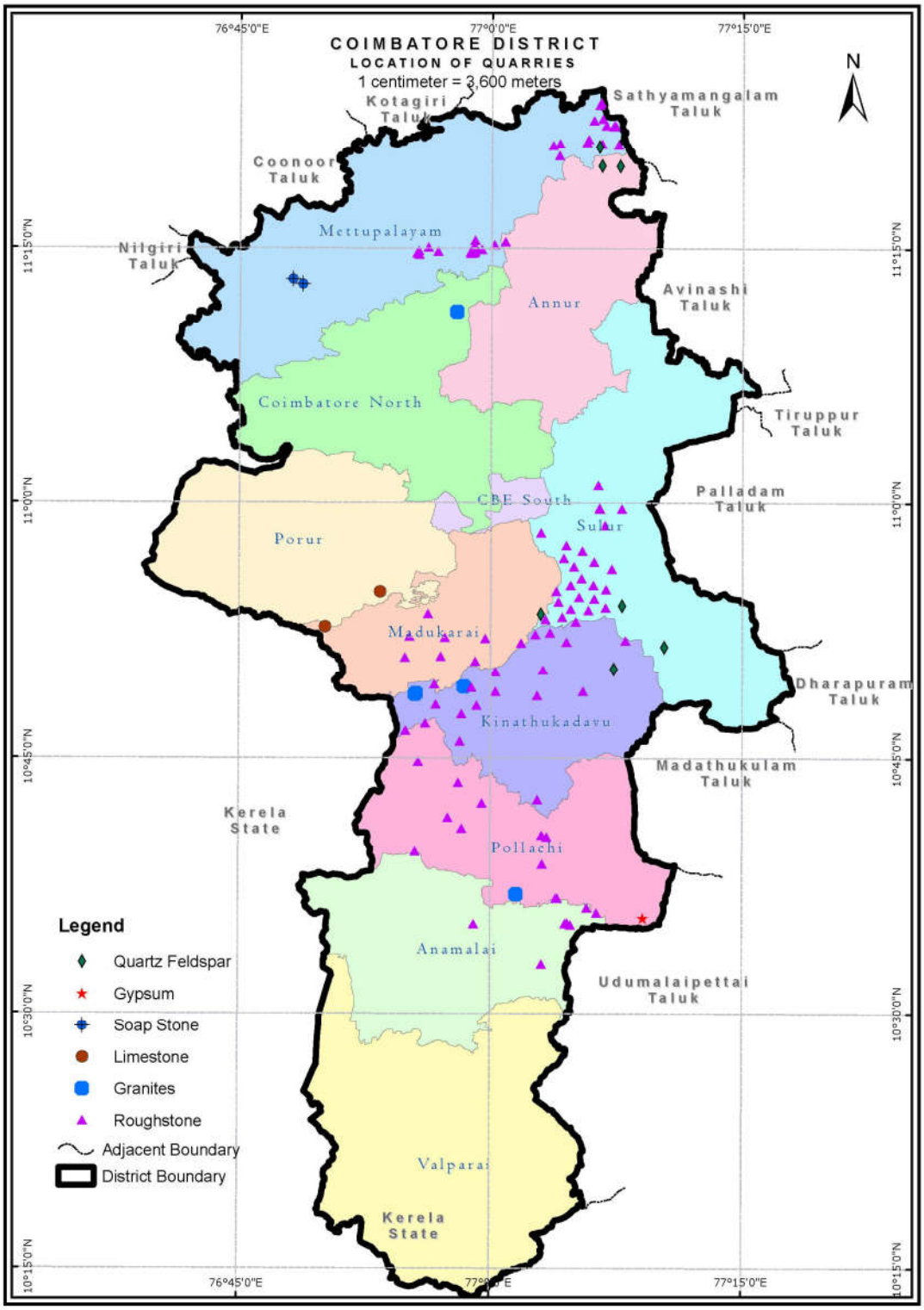
Sl. No.	Name of the Mineral	Name of the Lessee	Address & Contract No. of Lessee	Mining Lease Grat Order No. & Date	Area of Mining Lease (Taluk, Village, S.F.Nos. & Extent in ha)	Period of Mining Lease		Date of Commencement of Mining Operation	Status (Working/Non-Working / Temp. Working for Dispatch etc.)	Captive / Non - Captive	Obtained Environmental Clearance (Yes/ NO), If yes Letter No. With Date of Grant of EC		Location of the Mining Lease		Method of Mining (Opencast / underground)
						From Date	To Date				EC Obtained / Not	EC No with Date	Latitude	Longitude	
1	Multi Coloured Granite	Selvaraj.N.S	N.S.Selvaraj S/o.Subramania Naidu, 950-A,Narasingapuram, KrishnapuramPost, Udumalpet TK	G.O.(3 (D) No.66/Industires/ MMB2 Dt.25.10.2006	Coimbatore North Taluk, VellamadaiVillage,S.F.No. 676/1D(P) OAE of 1.31.0ha	15.11.2006	14.11.2026	-	Non Working	Non Captive	Ec Not Obtained	-	11°12'20"N	76°40'12"E	Open cast
2	Multi Coloured Granite	Murugesan.K	K.Murugesan S/o.V.KaruthaiahDevar, 10B/12Vellimalai Nadar Compound, MaduraiMainRoad, Melur-106	G.O.(3 (D) No.64/Industires/ MMB2 Dt.15.12.2003	Kinathukadavu Taluk, Sokkanur Village, S.F.Nos.490/1(P), 490/2, 491/1B, 491/2C OAE of 2.00.0ha	14.01.2004	13.01.2024	14.01.2004	Non Working	Non Captive	Ec Not Obtained	-	10°48'49. 90"N to 10°48'57. 61"N	76°55'29.82"E to 76°55'34.66"E	Open cast
3	Multi Coloured Granite	PRP Granites	M/s.PRP Granites (Near)Veera KaliammanKovilKeelava lavavuVillage,Mellur Taluk Madurai District	G.O.(3 (D) No.61/Industires/ MMB2 Dt.15.12.2003	Kinathukadavu Taluk, Sokkanur Village, S.F.No.558/2C (P) OAE of 2.60.0ha	14.01.2004	13.01.2024	14.01.2004	Non Working	Non Captive	Ec Not Obtained	-	10°48'47. 87"N to 10°48'54. 87"N	76°55'24.60"E to 76°55'30.57"E	Open cast
4	Multi Coloured Granite	Ravi.P	P.Ravi No.105, North Car Street Tiruchengode 637211 Namakkal District	G.O.(3 (D No.45/Industires/ MMB11 Dt.13.03.2007	Kinathukadavu Taluk, Pottayandipurambu Village S.F.No.142/3A2 OAE of 1.14.0ha	30.03.2007	29.03.2027	31.03.2007	Non Working	Non Captive	Ec Not Obtained	-	10°49'15"N	76°58'25"E	Open cast
5	Multi Coloured Granite	Pollachi Granites	Pollachi Granites, 36,Balagopalapuram Street, Pollachi	G.O.(3 (D) No.18/Industires/ MMB2 Dt.06.07.2009	Pollachi Taluk, Jaminkottampatti Village, S.F.No. 243/1D3(P) OAE of 1.00.0ha	10.08.2009	09.08.2029	11.08.2009	Non Working	Non Captive	Ec Not Obtained	-	10°37'07"N to 10°37'10"N	77°01'33"E to 77°01'37"E	Open cast

10. Details of Seigniorage Feereceivedin last three years for Granite(2016-17 to 2018-19):-

Year	Seigniorage Fee (In Rs.)
2016 - 17	8,64,000
2017 – 18	Nil
2018 – 19	Nil

11. Details of Production in last three years for Granite (2016-17 to 2018-19):-

Year	Production(In Cu.Mt)
2016 - 17	387.571
2017 – 18	Nil
2018 – 19	Nil



12. Mineral Map of the District:-

13. List of Letter of Intent (LOI) Holders in the District along with its validity as per the following format:-

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-captive)	Location of the Mining lease (Latitude & Longitude)
1	NIL							

14. Total mineral reserves available in the District:-

Total Granite reserves available in the existing 5 Granite quarry leases (as per the mining plan) is 3,46,928 Cu.Mt.

15. Quality/ Grade of Mineral available in the district: -

Multi Coloured Granitesdeposits found in Coimbatore District is Pinkish yellow coloured.The deposits occurring in Bilichi village of Coimbatore North and Jaminkottampatti village of Pollachi taluk are poor Quality and the deposits occurring in sokkanur, Pottyandipurambu village of Kinathukadavu taluk are good Quality.

16. Use of Mineral:-

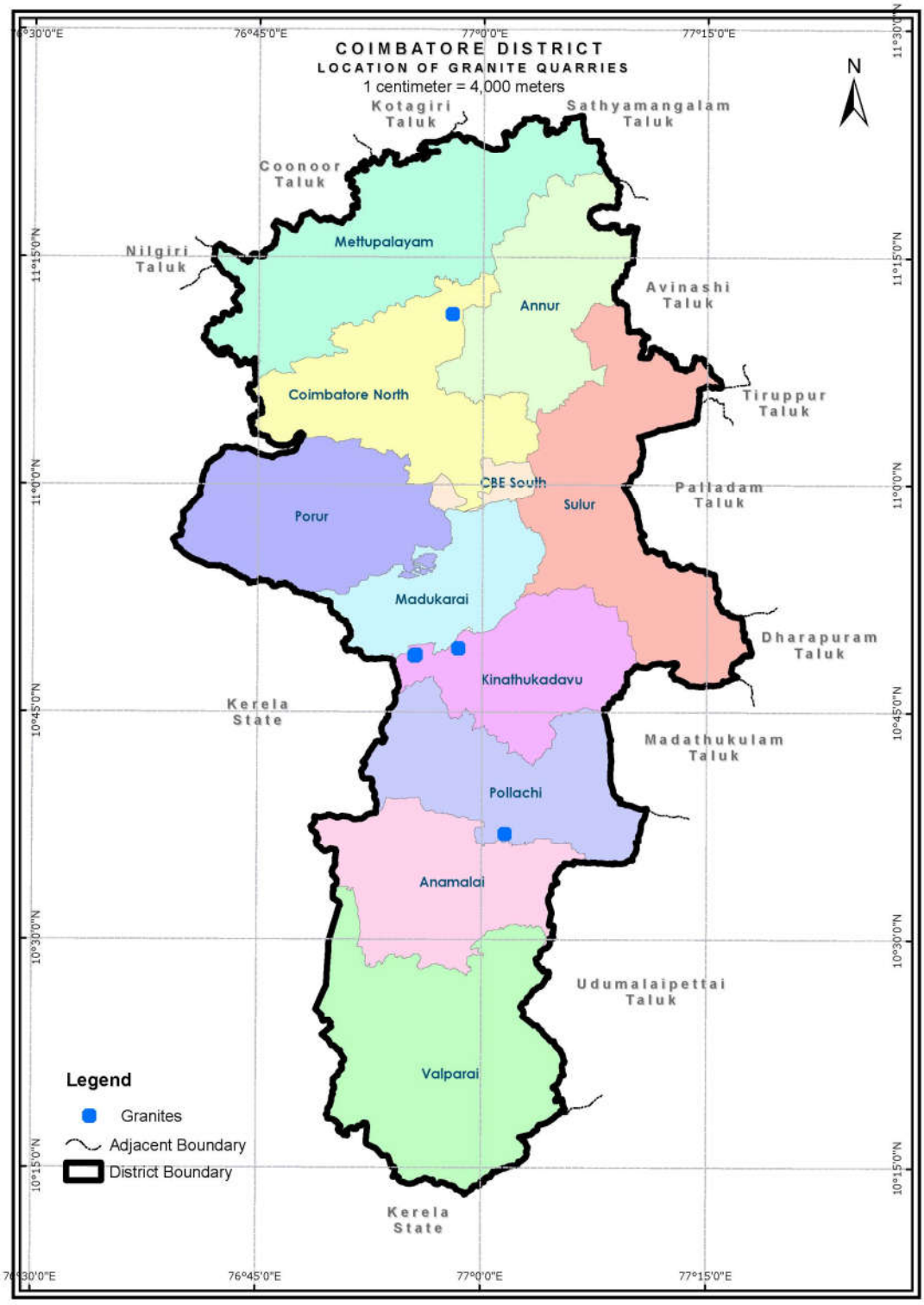
Granite is the most sought-after among all building stones. Presently, cut and polished granite slabs of 20 mm thickness are preferred for flooring, while tiles of 10 or 12 mm thickness are used for cladding. In addition, gravestones and monuments of various shapes and sizes are also in vogue. The flexibility of the cutting tools have engendered creation of many artifacts of granite for decorative purposes.

Granite also finds its application in making garden furniture, such as, benches, fountains and many other articles which are used for landscaping and/or decorative purposes. The cut-to-size small blocks are used as cobblestone, kerbstone, road sidings and for many other innovative purposes.

17. Demand and Supply of the mineral in the last three years:-

There is no production of Granite during the last two years as all the five quarries are non operative for want of Environmental Clearance. There is a drastic increase in demand due to the ongoing construction work.

18. Mining leases marked on the Map of the District:-



FIELD PHOTOGRAPHS OF THE GRANITE QUARRY:

Granite is quarried in Kinathukadavu area which is bounded by latitude- 10° 48' 01" & longitude- 77° 09' 12" and the granite in hand specimen coarse granite with interlocking texture mainly of quartz and feldspar and the granite is younger which is intruded within gneiss . Area 40×20m and depth is 30m on average.

Photo-3: Granite quarry in Kinathukadavu bounded bylat- 10° 48' 01" & long- 77° 09' 12"

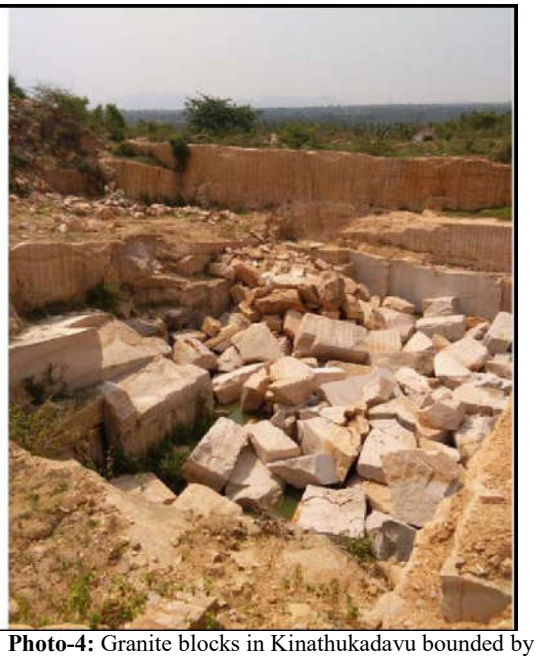


Photo-4: Granite blocks in Kinathukadavu bounded by lat- 10° 48' 01" & long- 77° 09' 12

19. Details of the area of where there is a cluster of mining viz., number of mining leases, location (latitude and longitude):-

S.No.	Name of the Mineral	Letter of Intent Grant order No. & date	Area of mining lease to be allotted (Ha)	Village	Taluk	District	Geological Reserves (Mill.Tons)	Use (Capitive/Non-capitive)	Location of the Mining lease (Latitude & Longitude)
Nil									

20.Details of Eco – Sensitive Area, if any, in the District:-

Aanaimalai Tiger Reserve, earlier known as Indira Gandhi Wildlife Sanctuary and National Park (IGWLS&NP) and previously as Aanaimalai Wildlife Sanctuary, is a protected area located in the Anaimalai Hills of Pollachi, Valparai and

Aanamalai taluks of Coimbatore District and Udumalaipettai taluk in Tiruppur District and Palani and Kodaikanal taluk in Dindigul District with a total area of 1479.87 km^2.

21. Impact on the Environment (Air, Water, Noise, Soil Flora &Fauna,Land use, Agriculture, Forest etc.,) due to Mining Activity:-

Generally, the Environmental impacts can be categorized as either primary or secondary. Primary impacts are those, which are attributed directly by the project, secondary impacts are those, which are indirectly induced and typically include the associated investment and changed pattern of social and economic activities by the proposed action.

The impact has been ascertained for the project assuming that the pollution due to mining activity has been completely spelled out under the baseline environmental status for the entire ROM which is proposed to exploit from the mines.

Air

Mining Operations are carried out by opencast semi mechanized/ Mechanized method, dust particles are generated due to various activities like, Excavation, Loading, handling of mineral and transportation. The air quality in the mining area depends upon the nature and concentration of emissions and meteorological conditions.

The major air pollutants due to mining activity includes:-

- Particulate Matter (Dust) of various sizes.
- Gases, such as, Sulphur Dioxide, Oxides of Nitrogen, Carbon Monoxide etc., from vehicular exhaust.
- Dust is the single Air pollutant observed in the open cast mines. Diesel operating drilling machines, small amount of blasting and movement of machinery/ vehicles produce NO_X,$SO_2$and CO emissions, usually at low levels. Dust can be of significant nuisance surrounding land users and potential health risk in some circumstances.

Water Impact

The mining operation leads to intersect the water table cause ground water depletion. Due to the interruption surface water sources like River, Nallah, Odai etc., surface water system, Drainage pattern of the area is altered.

Noise

Noise pollution is mainly due to operation of Machineries and occasional plying of machineries. These activities will create Noise pollution in the surrounding area.

Land Environment

The topography of the area will change, due to the Topographical changes the entire Eco system will be altered.

Flora and Fauna

The impact on biodiversity is difficult to quantify because of its diverse and dynamic characteristics.

Mining activities generally result in the deforestation, land degradation, water, air and noise pollution which directly or indirectly affect the faunal and floral status of the project area.

However, occurrence and magnitude of these impacts are entirely dependent upon the project location, mode of operation and technology involved.

22. Remedial Measure to mitigate the impact of Mining on the Environment:-

Air

Mitigated measures suggested for air pollution controls are based on the baseline ambient air quality of the area

The following measures are proposed to adopted in the mines such as,

- Dust generation shall be reduced by using sharp teeth of shovels.
- Wet drilling shall be carried out to contain the dust.
- Controlled blasting techniques shall be adopted.

- Water spraying on haul roads, service roads and overburden dumps will help in reducing considerable dust pollution.
- Proper and regular maintenance of mining equipment's have to be considered.
- Transport of material in trucks covered with tarpaulin.
- The mine pit water can be utilized for dust suppression in and around mine areas.
- Information on wind direction and meteorology will be considered while planning, so that pollutants, which cannot be fully suppressed by engineering technique, will be prevented from reaching the nearby agriculture area.
- Comprehensive green belt around overburden dumps has to be carried out to reduce to fugitive dust emissions in order to create clean and healthy environment.

Water

- Construction of garland drains to divert surface run-off into the mining area.
- Construction of check dams / gully plugs at strategic places to arrest silt wash off from broken up area.
- Retaining walls with weep hole will be constructed around the mine boundariesto arrest silt wash off.
- The mined out pits shall be converted into the water reservoir at the end of mine life. This will help in recharging ground water table by acting as a water harvesting structure.
- Periodic analysis of mine pit water and ground water quality in nearby villages.
- Domestic sewage from site office & urinals/latrines provided in ML is discharged in septic tank followed by soak pits.

Noise

Mitigation measures

- Periodic maintenance of machinery, equipment'sshall be ensured to keep the noise generated at minimum.

- Development of thick green belt around mining area and haul roads to reduce the noise.
- Provision of earplugs to workers exposed to high noise generating activities. Workers and operators at work site will be provided with earmuffs.
- Conducting periodical medical checkup of all workers for any noise related health problems.
- Proper training to personnel to create awareness about adverse noise level effects.
- Periodic noise monitoring at suitable locations in the mining area and nearby habitations to assess efficacy of adopted control measures.
- During the blasting, optimum Spacing, Burden and charging of holes will be made under the supervision of competent qualified mines foreman, Mate as approved by Director of Mines safety.

Biological Environment

MITIGATION MEASURES:

- Development of gap filling saplings in the safety barrier left around the quarryarea.
- Carrying out thick greenbelt with local flora species predominantly with long canopy leaves on the inactive mined out upperbenches.
- Development of dense poly-culture plantation using local flora species in the mining area at conceptual stage.
- Adoption of suitable air pollution control measures as suggested above.
- Transport of materials in trucks covered with tarpaulin.
- Construction of garland drains and settling tank to arrest silt wash off from lease area.
- Construction of retention walls around lower boundary of mining area to arrest silt washoff and roll down boulders.
- Retaining walls with weep hole will be constructed around the mine boundariesto arrest silt wash off.

23. Reclamation of Mined out area (Best practice already implemented in the district, requirement as per rules and regulation, proposed reclamation plan):-

There is no proposal for backfilling, reclamation and rehabilitation. The quarry pit should be fenced by barbed wire to prevent inherent entry of public and cattles. The quarried out pit will be allowed to collect rain and seepage water which act as a reservoir for storage. The Qurried pit may be used as water reservoir for both Domestic and Agriculture purbose**.**

24. Risk Assessment & Disaster Management Plan:-

The Disaster Management Plan (DMP) is supposed to be a dynamic, changing, document focusing on continual improvement of emergency response planning and arrangements.

The disaster management plan is aimed to ensure safety of life, protection of environment, protection of installation, restoration of production and salvage operations in this same order of priorities. For effective implementation of the disaster management plan, it should be widely circulated and personnel training through rehearsals/induction conducted by the respective department from time to time.

General Responsibilities of Employees during an Emergency:

During an emergency, it becomes more enhanced and pronounced when an emergency warning is raised, the workers in-charge, should adopt safe and emergency shut down and attend any prescribed duty as essential employee. If no such responsibility is assigned, he should adopt a safe course to assembly point and await instructions. He should not resort to spread panic. On the other hand, he must assist emergency personnel towards objectives of DMP.

Co-ordination with Local Authorities:

The mine manager who is responsible for emergency will always keep a jeep ready at site. Incase any eventualities the victim will be taken to the nearby hospitals after carrying out the first aid at site. A certified first aid certificate holder will be

responsible to carryout the first aid at site. The mine manager should collect and have adequate information of the nearby hospitals, fire station, police station, village panchayat heads, taxy stands, medical shop, district revenue authorities etc., and use them efficiently during the case of emergency.

25. Details of the Occupation Health issues in the District. (Last five-year date of number of patients of Silicosis & Tuberculosis is also needs to be submitted):-

As per the guidelines of the Mine Rules 1955, occupational health safety stipulated by the ILO/WHO.Theproponent's will take all necessary precautions. Normal sanitary facilities should be provided within the lease area. The management will carry out periodic health checkup of workers.

Occupational hazards involved in mines are related to dust pollution, Noise pollution, blasting and injuries from moving machineries & equipment and fall from high places. DGMS has given necessary guidelines for safety against these occupational hazards. The management will strictly follow these guidelines.

All necessary first aid and medical facilities will be provided to the workers. The mine shall be well equipped with Personal Protective Equipment (PPE). Further all the necessary protective equipment's such as helmets, safety goggles, earplugs, earmuffs, etc. will be provided to persons working in mines as per Mines Rules. Alloperators and mechanics will be trained to handle fire-fighting equipment's.

26. Plantation of Green Belt development in respect of leases already granted in the District:-

Green Belt Development

- A well planned Green Belt with multi rows (Three tier) preferably with long canopy leaves shall be developed with dense plantations around the boundary and haul rods to prevent air, dust noise propagation to undesired places. Efforts will be taken for the enhancement of survival rate since the soil is alkaline in nature.

Species Recommended for Plantation

Following points have been considered while recommending the species for plantation:

- ❖ Natural growth of existing species and survival rate of various species.
- ❖ Suitability of a particular plant species for a particular type of area.
- ❖ Creating of bio-diversity.
- ❖ Fast growing, thick canopy cover, perennial and evergreen large leaf area,
- ❖ Efficient in absorbing pollutants without major effects on natural growth.
- ❖ The following species may be considered primarily for plantation best suited for the prevailing climatic condition in the area.

RECOMMENDED SPECIES TO PLANT IN THE GREENBELT

S.No	Name of the plant (Botanical)	Family Name	Common Name	Habit
1.	Azadirachtaindica	*Meliaceae*	Neem, Vembu	Tree
2.	Albiziafalcatoria	*Fabaceae*	Tamarind, Puliyamaram	Tree
3.	Polyalthialongifolia	*Annonaceae*	Kattumaram	Tree
4.	Borassusflabellifer	*Arecaceae*	Palmyra Palm	Tree

27. Any other information: - Nil

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