



# **INDUSTRIES DEPARTMENT**

## **MINES AND MINERALS**

### **POLICY NOTE**

**2020 – 2021**

**DEMAND No.27**

**C.Ve. SHANMUGAM**

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**Government of Tamil Nadu**

**2020**

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# **INDUSTRIES DEPARTMENT**

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#### **1. DEPARTMENT OF GEOLOGY AND MINING**

Tamil Nadu has varied geological rock formations and geomorphological features. These rock formations contain major minerals such as Limestone, Magnesite, Graphite, Vermiculite, Bauxite, Iron ore, Lignite, Monazite, Garnet, Sillimanite, Rutile, Zircon, Ilmenite, Leucoxene, minor minerals such as Black Granite, Multi Coloured Granite, Clay, Gypsum, Silica Sand, Quartz, Feldspar and mineral oils such as Petroleum and Natural Gas.

The District Survey Reports have been prepared and hosted in the district websites in 2019. This report contain holistic information on minerals available in the district. It is useful to

entrepreneurs for applying mineral concessions for development of minerals. Besides, based on the Survey Reports, the State Environmental Impact Assessment Authority is granting Environmental Clearance for development of minerals.

Due to concerted efforts of this Government, the revenue from mineral resources has gone up significantly. The revenue was Rs.1106 crore in the financial year 2017-18. It increased to Rs.1186 crore in the financial year 2018-19. In this financial year 2019-2020, the revenue is Rs.976 crore till December 2019.

For the welfare of the people in the mining areas, this Government has been implementing a plethora of projects through the District Mineral Foundation Trust Fund in the sectors of infrastructure, education, drinking water, health, sanitation, welfare of the aged and differently abled people, welfare of women and children, skill

development, environment and pollution control and irrigation. A total of 1524 projects have been taken up at a cost of Rs.409.56 crore.

The clandestine mining of minerals and transportation of minerals is a big challenge to the society. To stem this menace plaguing the society, Government has taken a series of stern measures such as deployment of Drone technology, Mining Surveillance System i.e., Satellite based monitoring system and flying squads.

As per the Mines and Minerals (Development and Regulation) Amended Act, 2015, the development of major minerals shall be taken up after establishment of mineral contents. For this, the Government has taken systematic measures for exploration of major minerals such as Lignite, Iron Ore and Limestone. The National Mineral Exploration Trust has funded Rs.86.67 crore for exploration of Lignite, Iron ore and Platinum

group of minerals in the districts of Cuddalore, Namakkal and Tiruvannamalai in 2018. In order to supply limestone continuously to the cement industries, a sum of Rs.6.55 crore was allotted for exploration of Limestone in Ariyalur district in 2019. Once the mineral contents are established these areas will be brought to auction for development of major minerals. In addition, Government has been taking steps to bring the granite bearing Government lands for auction to revive the Granite Industries in the State.

### ***1.1 Vision and Mission***

The vision of this department is “To consolidate the leadership position of Tamil Nadu in the management of the mineral wealth” and the mission is “To undertake/facilitate scientific exploration, optimal exploitation, judicious conservation and revenue maximization in industry, eco and a citizen friendly policy framework”.

## **1.2 Objectives**

- (i) Use of modern technologies in the exploration of minerals on eco-friendly basis.
- (ii) Generation of revenue through effective and efficient administration of minerals.
- (iii) Generation of job opportunities.
- (iv) Prevention of illegal mining and transportation of minerals by taking stringent action.
- (v) Implementation of projects in the sectors of drinking water, health, welfare of women and child care, infrastructure, welfare of aged and differently abled, sanitation, environmental and pollution control, skill development, irrigation, watershed management for the welfare of the society using District Mineral Foundation Trust Fund.

### **1.3 Functions**

- (i) The Department has been carrying out exploration of new mineral deposits in coordination with the Geological Survey of India (GSI) and Government of India (GOI) notified agencies such as Mineral Exploration Corporation Limited (MECL), Kudremukh Iron Ore Corporation Limited (KIOCL), Tamil Nadu Cements Corporation Limited (TANCEM) and TamilNadu Minerals Limited (TAMIN).
- (ii) Mineral Concessions are granted to public sector undertakings such as TAMIN, TANCEM, TANMAG, Neyveli Lignite Corporation India Limited (NLCIL), Indian Rare Earths (India) Limited and private sector for the development of minerals. For this, royalty, surface right compensation, dead rent are collected from the lessees



of major minerals; seigniorage fee, dead rent, area assessment, annual brick mineral fee are garnered from the lessees of minor minerals. These sources are generating significant revenue to the State exchequer.

- (iii) For effective control on the clandestine mining of minerals and its transportation, the flying squads operating in the regions of Salem, Villupuram and Madurai are routinely checking the mining areas and vehicles transporting minerals.
- (iv) The hill areas in Kodaikanal of Dindigul district and the Nilgiris district are prone to landslides triggered by rainfall during the monsoons. Geotechnical Cells in these districts have been mapping the hilly areas for identification of weak zones susceptible to landslides. They

suggest remedial measures to the district administration to mitigate the natural hazard. Besides, they are processing the applications made by individuals and Government bodies and after examining the safety and suitability of the areas, offer technical feasibility report for any construction activity in the hill areas.

#### ***1.4 Mineral Resources, Production and Revenue***

Tamil Nadu is endowed with major minerals, minor minerals and oil minerals. These minerals are detailed below:

##### ***A. Major Minerals***

###### ***(i) Limestone***

It is used in the manufacture of lime, cement, chemicals, fertilisers and in metallurgical industries. It is of two types,

(a) Crystalline Limestone: It occurs mainly in Salem, Tiruchirapalli, Karur, Dindigul, Madurai, Virudhunagar, Coimbatore and Kanniyakumari districts. The reserves of crystalline limestone is estimated at 200 million tonne.(b) Non-Crystalline Limestone or Fossiliferous Limestone: It occurs in Ariyalur, Tiruchirapalli and Thoothukudi districts. The reserves of Fossiliferous Limestone is estimated at 670 million tonne. Leases have been granted for mining of Limestone over an extent of 6776 hectares.

(ii) **Bauxite**

The metal Aluminium is extracted from this ore. Bauxite is also used in refractory, cement, chemical and paint industries and in refining petroleum products. The Shervaroy hills in Salem district and Kollihills in Namakkal district contain good deposits of

Bauxite. Leases have been granted over an extent of 421 hectares for mining Bauxite.

*(iii) **Magnesite***

It is a magnesium carbonate mineral. It finds wide use in refractories as flux in sintering, blast furnace, conditioners, ceramic filters and abrasives. One of the World's best Magnesite deposits occur in the Chalk hills of Salem district. The reserves of Magnesite is estimated at 40.5 million tonne. Leases have been granted over an extent of 1513 hectares for mining Magnesite.

*(iv) **Graphite***

It is a naturally occurring crystalline Carbon used in crucible industry, insulators, electrodes, atomic reactors and foundry units. Graphite occurs mainly in Sivaganga and Madurai districts. TAMIN has been

mining Graphite over an extent of 275 hectares in Sivaganga district.

(v) ***Vermiculite***

It is a yellow brown coloured micaceous mineral. It is used as insulators and in manufacture of vermitiles. TAMIN has been mining this mineral over an extent of 24 hectares in Tirupattur District.

(vi) ***Lignite***

This fuel mineral is found in three areas namely Neyveli, Mannargudi and Ramanathapuram. The reserves of Lignite in these areas is estimated at 34,764 million tonne. The NLCIL has been mining Lignite in Neyveli over an extent of 25,900 hectares in Cuddalore district.

**(vii) Atomic Minerals**

Beach sands in Tirunelveli, Thoothukudi and Kanniyakumari districts contain atomic minerals such as Monazite, Garnet, Ilmenite, Rutile, Sillimanite, Zircon and Leucoxene. The Indian Rare Earths (India)Limited has been mining these minerals in Kanniyakumari district. Garnet also occurs as placer deposit in Tiruchirapalli district and as rock forming deposit in Madurai district. The GOI, Ministry of Mines vide order dated 01.03.2019 notified that the threshold value of monazite occurring in beach sand minerals and other placer deposits is fixed as 0.00%. Henceforth, any mineral concession of beach sand minerals shall be granted only to a "Government Company or Corporation owned or controlled by the Government" under the provisions of the Atomic Minerals Concession Rules, 2016.

## **B. Minor Minerals**

### **(i) Granite**

Tamil Nadu is endowed with rich deposits of Granite. The hard crystalline rocks that are amenable to cutting and polishing are called Granite. The quarrying of Granite in India was pioneered by Tamil Nadu in 1970s. Granite produced in different sizes such as monuments and tiles has huge market in foreign countries, earning substantial foreign exchange. Black Granite occurs in the districts of Salem, Villupuram Krishnagiri, Dharmapuri and Tiruvannamalai. Granites of various shades occur in the districts of Salem, Krishnagiri, Madurai, Virudhunagar and Dindigul. Some of the most popular commercial varieties quarried in Tamil Nadu are Kunnam Black, Zebra White, Paradiso, Red Wave, Tiger Skin, Desert Brown and Kashmir White. A total of

2999 hectares has been leased out for quarrying Granite in TamilNadu.

*(ii) **Gypsum***

A total of 27 hectares of land in Coimbatore, Perambalur and Tiruppur districts has been leased out for mining Gypsum. It is used in the manufacture of Plaster of Paris and also in industries such as cement, fertilizer and pesticides.

*(iii) **Fire Clay***

The chief use of fire clay is in refractory, ceramic articles, cement industries and as decorative tiles. It is found in the districts of Ariyalur and Cuddalore. Leases have been granted to an extent of 72 hectares for mining this mineral.

*(iv) **Soapstone***

It occurs mainly in the districts of Salem and Namakkal. Leases have been granted for



mining Soapstone over an extent of 14 hectares. It is used in the manufacture of talcum powder and decorative articles.

(v) ***Quartz and Feldspar***

The districts of Salem, Karur, Dindigul, Namakkal, Tiruppur and Dharmapuri have good deposits of Quartz and Feldspar. It is mainly used in glass, refractory, foundry, ceramic, electrical, abrasives and paint industries. Leases have been granted over an extent of 339hectares in these districts for mining these minerals.

(vi) ***Silica Sand***

It is mainly used in glass industry. It occurs in the districts of Villupuram, Nagapattinam, Kancheepuram and Cuddalore. A total extent of 30hectares of land in these districts has been leased out for mining Silica Sand.

### **C. Oil Minerals**

#### **Petroleum and Natural Gas**

The Oil and Natural Gas Corporation (ONGC) has been producing Oil and Natural Gas in the districts of Cuddalore, Thanjavur, Tiruvarur, Nagapattinam, Pudukottai, Ariyalur and Ramanathapuram.

### **D. Mineral Production**

The details of production of major, minor and oil minerals in the State from April 2019 to December 2019 are tabulated below:

#### **(i) Production of Major Minerals**

<b>Sl.No.</b>	<b>Mineral</b>	<b>Production (in Metric Tonne)</b>
1	Lignite	1,86,44,757
2	Limestone	1,49,27,945
3	Magnesite	52,816
4	Ilmenite	25,337
5	Garnet	7,294
6	Zircon	1,939
7	Monazite	847
8	Rutile	827
9	Vermiculite	585

## (ii) Production of Minor Minerals

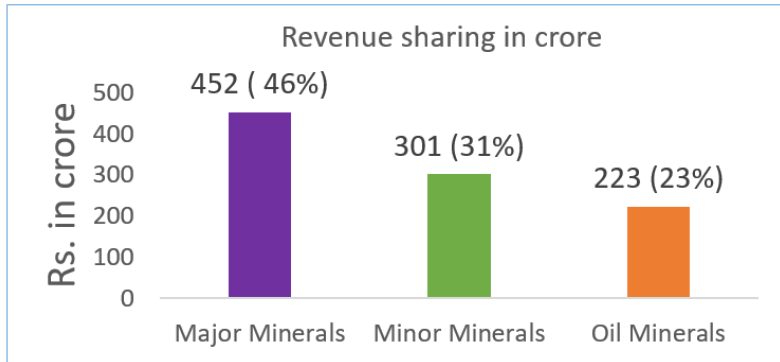
Sl.No.	Mineral	Production
1	Roughstone	2,28,35,088 CBM
2	Earth/Gravel	42,42,201 CBM
3	Lime Kankar	2,05,685 MT
4	Coloured Granite	88,006 CBM
5	Quartz and Feldspar	82,280 MT
6	Fire Clay	70,600 MT
7	Pebbles	25,830 CBM
8	Black Granite	7,157 CBM
9	Quartzite	1,218 MT

## Production of Oil Minerals

Sl. No.	Mineral	Production
1	Crude Oil	3,04,756 MT
2	Natural Gas	79,10,00,000CBM

## ***E. Mineral Revenue***

The revenue generated from the mineral resources during this financial year 2019-20 is Rs.976 crore (upto December 2019). The share of revenue from major minerals, minor minerals and oil minerals is shown below:-



Due to effective enforcement, during this financial year till December 2019, 7012 vehicles transporting minerals without valid documents were seized. A penalty of Rs.12.38 crore was levied and collected. In addition, 8165 criminal cases/FIRs have been filed. Goondas Act has been invoked against 10 habitual offenders.

### ***1.5 District Mineral Foundation Trust***

The District Mineral Foundation Trust was established in 30 districts except Chennai and the Nilgiris in 2017. The public sector undertakings and private companies granted leases for mining and quarrying of minerals have been contributing to this Trust. This fund is utilized for the

implementation of the Pradhan Mantri Khanij Kshetra Kalyan Yojana (PMKKKY) and other welfare schemes for areas and people in the mining and quarry areas. A sum of Rs.627 crore has been contributed by the lessees from the period of establishment of this Trust in 2017 upto December 2019.

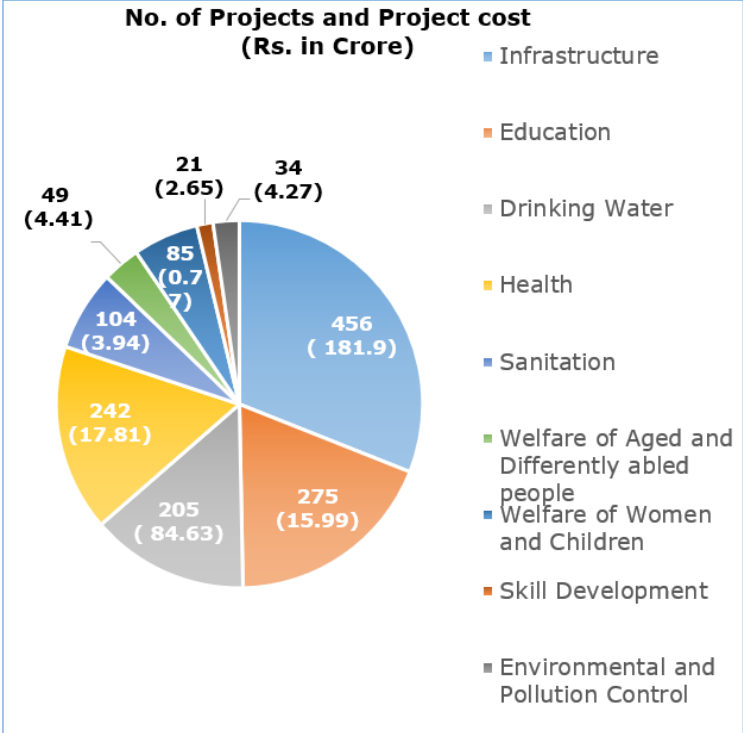
A minimum of 60% of the fund is earmarked for taking up projects under the high priority sectors such as health care, drinking water, education, welfare of women and children, welfare of aged and differently abled people, skill development, infrastructure, sanitation, environmental preservation and measures to control pollution.

The remaining fund is used for projects that fall under other priority sectors such as irrigation development, energy and watershed development, environmental preservation and pollution control measures.

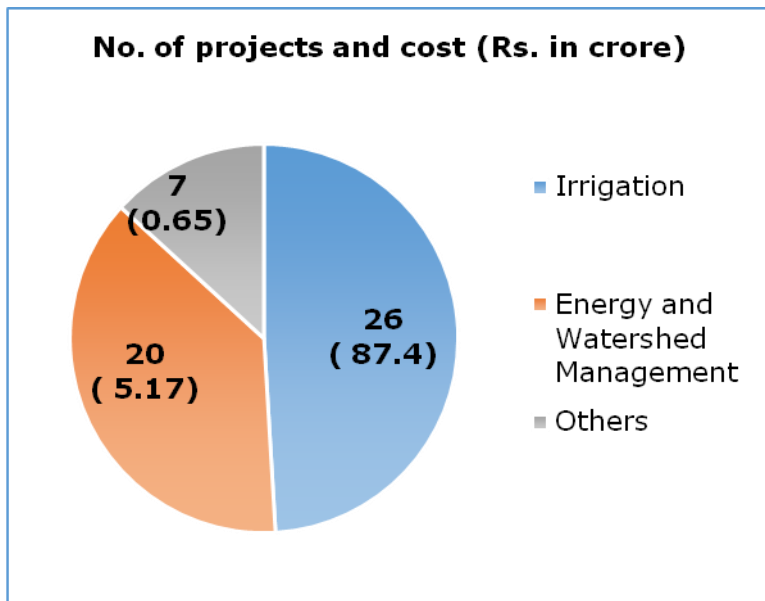
A total of 1524 projects have been taken up at a cost of Rs.409.56 crore for the period till

31.12.2019. Out of these projects, 773 have been completed and put into use. The number and cost of projects that are taken up under high priority and other priority sectors are shown in the charts.

**(i) High Priority Sectors**



## ***(ii) Other Priority Sectors***



### ***1.6 National Mineral Exploration Trust***

The National Mineral Exploration Trust was established in 2015. The lessees of major minerals have been contributing 2% on royalty to this Trust. A sum of Rs.45.96 crore has been contributed by them to the Trust for the period till 31.12.2019.

This fund is invested for exploration of minerals regionally and particularly for strategic and critical minerals, development of mineral resources, extraction of minerals by adopting modern scientific and technological methods, facilitate geophysical, geochemical, aerial geosurvey of geological potential areas and to organize capacity building programmes.

Exploration of Lignite, Platinum group of minerals and Iron ore in Tamil Nadu has been taken up at a cost of Rs. 86.67crore in 2018 by Mineral Exploration Corporation Limited (MECL) andKudremukh Iron Ore Company Limited (KIOCL).

Exploration of Limestone in 5 blocks over an extent of 655 hectares in Ariyalur district has been taken up at a cost of Rs. 6.55 crore in 2019. MECL has been exploring Limestone in 4 blocks and KIOCL in one block. Once the reserves of



Limestone are established, the blocks will be auctioned.

### ***1.7 Molybdenum***

MECL has identified economically viable deposits of Molybdenum in the districts of Krishnagiri and Dharmapuri. The reserves of Molybdenum is estimated at 0.699 million tonne in Krishnagiri district and 8.350 million tonne in Dharmapuri district. The Government of India has conveyed the market price of Molybdenum. The rate of royalty is awaited from the Ministry of Mines and on its receipt, the blocks will be brought to auction for developing this strategic mineral.

### ***1.8 New Initiatives***

#### ***(i) Mining Surveillance System***

It is a satellite based monitoring system that creates trigger for any mining and quarrying activities within 500m radius from

the existing mining lease boundaries. This helps to identify and curb illegal mining and quarrying activities in the State. The coordinates of the existing minor mineral lease hold areas in the State have been uploaded in the satellite monitoring system in Bhaskaracharya Institute for Space Application and Geo-informatics (BISAG), Ahmedabad in 2019. The triggers received from the satellite are studied at the Remote Sensing Control Centre of IBM, Udaipur in Rajasthan. The data is transferred to this department for field verification which is being carried out by the field officers.

*(ii) Exploration of minerals*

Geological reports on Magnesite in Salem district and Limestone in Ariyalur, Dindigul and Karur districts are being prepared. After approval by GOI, exploration of minerals in these districts will be taken up.

***(iii) Revival of Granite Industry***

For reviving the Granite industry in the State, Rule 8-A of Tamil Nadu Minor Mineral Concession Rules, 1959, was amended in 2019. This amendment enables both granite companies and individuals to participate in the tender cum auction. The amendment is aimed to promote competitiveness and to fetch more revenue to the Government. New areas bearing good deposits of Granite in Government lands have been identified. These areas will be brought under tender cum auction for reviving the Industry with a view to generate job opportunities and to augment revenue to Government.

***(iv) Mining Tenement System***

It will be implemented for online administration of minor minerals for ease of doing business.

(v) ***Drone Technology***

To keep a vigil on excess mining of minerals in the leased out areas and mining of minerals outside the leased boundaries, drone technology will be deployed for assessing the quantum of minerals removed, for recovering the cost of minerals from the lessees and invoking penal provisions against them.

(vi) ***Digitisation of data***

Digitisation of data pertaining to mines and quarries for effective and efficient mineral administration has been taken up.



Check dam constructed across Gadilam river in Vilangalpattu village in Cuddalore district at a cost of Rs. 12.50 crore from DMFT Fund





Check dam constructed across the Kallar odai in Kallankurichi village in Ariyalur district at a cost of Rs. 2 crore from DMFT Fund





## **2.TAMIL NADU MINERALS LIMITED**

TAMIN is a mining and mineral processing company, 100% owned by the Government of Tamil Nadu. TAMIN was started in 1978 and is engaged in the exploration, mining, exploitation, processing and marketing of Granite and other minerals like Limestone, Vermiculite, Quartz, Feldspar, Silica sand, Graphite. TAMIN has three granite processing units. To support the processing of value added products, TAMIN has leases of various minerals spread all over Tamil Nadu. TAMIN has also created a market for various finished and semi-finished granite products like dimensional random building slabs, calibrated tiles, wall panels, monuments in various countries. Apart from Granite processing plants, TAMIN has units for processing of Graphite flakes at Sivagangai District, processing of Silica sand at Ennore, Chennai District and Exfoliation of Vermiculite at Sevathur, Tirupathur District.

TAMIN has established its credentials as an exporter of International repute and its export performance has been recognized by National and State agencies.

## **2.1 Capital**

(Rs. in lakh)

Initial authorized capital	100.00
Present authorized capital	2000.00
Initial paid up capital	27.50
Present paid up capital	1573.89

## **2.2 Staff Strength**

Officers	42
Staff	313
Workers	409
<b>Total</b>	<b>764</b>

### **2.3 Vision**

To be number one in the mineral sector for value creation and conservation of natural resources.

### **2.4 Mission**

- Continued search for new mineral deposits.
- Continuous updation of technology in safe mining operations, with state-of-art machineries, quality control measures and mineral processing and marketing.
- Export of granites and minerals with value addition for earning foreign exchange for the country.
- Generate gainful employment to people in rural and backward areas

### **2.5 Lease Details**

TAMIN has 75 leases and the details are given as below:

<b>Sl. No.</b>	<b>Minerals</b>	<b>No. of leases</b>	<b>Extent (in hectares)</b>
1	Black Granite	36	646.436
2	Colour Granite	31	487.980
3	Minor Minerals (other than Granite)	02	4.355
4	Major Minerals	06	282.590
	<b>Total</b>	<b>75</b>	<b>1421.361</b>

## **2.6 Production & Sales**

During the financial year 2019-20, TAMIN has produced and sold dimensional granite blocks of about 1765 CBM upto December 2019. For obtaining Environmental Clearance (EC) for certain quarries/mines, TAMIN has approached Ministry of Environment and Forests(MoEF) and State Environment Impact Assessment Authority (SEIAA) by submitting necessary EIA (Environment Impact Assessment) documents. TAMIN will operate many quarries soon by getting EC.

## **2.7 Action Plan 2020-2021**

TAMIN is taking earnest steps to improve its business. Accordingly, following initiatives are being taken.

- (a) One premium black granite quarry namely Yellikaradu Bit-II black granite quarry at Metturdam, Salem district has recommenced its operations from November 2019 and is generating monthly revenue of Rs.1 crore from this quarry.
- (b) One of the major revenue contributors for TAMIN is Graphite mine at Sivagangai District. Expert Appraisal Committee of MoEF has recommended for issuing EC. On receipt of the environmental clearance, Graphite mine and plant will be put into operation. This will generate revenue of Rs.2 crore per month.

- (c) Commencement of Periyagalur Limestone mine at Ariyalur district by the end of March 2020 after obtaining EC from SEIAA, would generate revenue of Rs.1.50 crore per month.
- (d) TAMIN is hopeful of getting EC for 6 more quarries / mines by May 2020 which will generate gross revenue of Rs.2.50 crore per month.
- (e) TAMIN is also taking steps to get leases of Silica sand mines to operate and sell Silica sand to cement manufacturers by which revenue of Rs.1 crore per month will be generated.
- (f) Ministry of Mines, Government of India, has notified TAMIN as "Notified Agency" to take up exploration under National Mineral Exploration Trust (NMET) fund. TAMIN is planning to take up exploration

in certain Limestone blocks in Tamil Nadu during the financial year 2020-21.

## ***2.8 Management of mines and quarries***

TAMIN is always carrying out quarry operations in a systematic and scientific manner by adopting modern techniques with state-of-the-art mining machineries in all its mines to protect the environment against noise, dust, smoke and vibrations. TAMIN is using modern mining machinery such as wire saws, hydraulic drillers, excavators and using expansive mortar in lieu of explosives, to reduce pollution.







Granite wire saw cutting at TAMIN Granites Plant, Melur, Madurai District.



### **3.TAMIL NADU MAGNESITE LIMITED**

Tamil Nadu Magnesite Limited (TANMAG), a Tamil Nadu State owned Public Sector Undertaking was established in the year 1979. TANMAG obtained Mining Lease from Government to an extent of 96.34 hectares (238 acres) at Kurumbapatty Reserve Forest area for the production of 1,19,679 MT of raw Magnesite and 98,237 MT of Dunite under lease.

#### ***3.1Activities***

TANMAG excavates Magnesite by open cast mechanized method and employs qualified and experienced mining personnel. It exploits the mineral resource through scientific and eco friendly mining techniques. While mining Magnesite, Dunite is obtained as a co-existent mineral.

The process of mining raw Magnesite involves selection and preparation of site, drilling, blasting, picking, dressing, sorting, stacking and removal of reject to spoil bank.

### **3.2 Divisions**

The Company has three divisions namely, Mines Division, Shaft Kiln Division (SKD) and Rotary Kiln Division (RKD).

### **3.3 Products**

The excavated raw magnesite is captively consumed for manufacturing of Dead Burnt Magnesite (DBM) at Rotary Kiln Division and Lightly Calcined Magnesite (LCM) at Shaft Kiln Division. Dunite is a co-existing mineral with raw Magnesite and is sold to customers directly.

### **3.4 Share Capital**

The authorised Share Capital of the Company is Rs.50 crore consisting of 50 lakh shares of Rs.100/- each and the paid up capital is 16,65,000 shares of Rs.100/- each amounting to Rs.16.65 crore.

### **3.5 Action Plan for the year 2020-2021**

As per the direction of Ministry of Environment, Forest & Climate Change (MoEF&CC), Government of India, operation of Arasu Magnesite Mines of TANMAG was discontinued on 14.04.2018 for want of Environmental Clearance (EC). TANMAG received the Terms of Reference and public hearing was conducted on 29.01.2020. The final Environment Impact Assessment (EIA)/ Environment Management Plan (EMP) report has been submitted to State Environment Impact Assessment Authority (SEIAA) of Tamil Nadu on 15.02.2020 for obtaining Environment Clearance and Mining operation will be resumed tentatively by April 2020.

In the year 2020-2021, TANMAG has planned to produce 1,19,679 MT of raw Magnesite and 98,237 MT of Dunite. It is expected to produce and sell 30,000MT of DBM and 17,000 MT of LCM

by utilizing the above raw Magnesite. Accordingly, the Company has projected to achieve Rs.148.07 crore as sales turnover for the year 2020-2021.

### **3.6 National Mineral Exploration Trust(NMET)**

Ministry of Mines, Government of India has notified TANMAG as a “Notified Agency” to take up exploration under National Mineral Exploration Trust (NMET).

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