

## **Kerala State Mineral Policy - 2009**

### **1.0. Preamble**

Minerals are non-renewable resources and are mostly found under the surface of earth and can be extracted only by mining. Minerals constitute the backbone of economic growth of any country. The progressive industrialisation has increased the demand for minerals resulting in large scale production of minerals. Mining and quarrying have been age old practices in Kerala also from palaeolithic age as evidenced by the ancient temples and monuments. A number of underground workings in the Wayand Hills, record a mining activity well developed during nineteenth century. Old workings are also reported in the laterite cappings. The gold placers of Nilambur valley have been worked for centuries. Tradition of gold panning is part of the culture in the Chaliyar puzha. Clandestine mining operation dating back to more than 40 years for gemstones have been noticed in Kerala. M/s. Morgan Crucible Company started mining graphite near Thiruvananthapuram in 1898.

There is no large scale mining activity in Kerala as in other parts of the country. Almost all the mines are open cast and limited in areal extent. The important mines of major minerals are china clay, laterite/bauxite, limestone and limeshell. Mineral sands and silica sand are excavated by scooping and quartz is being extracted by taking trenches and pits. The important minor minerals in the State are granite building stones, dimension stone, laterite, tile/brick clay and ordinary sand. Granite and Laterite are quarried to a maximum depth of 50m and tile/brick clay and ordinary sand to a depth of 5m.

### **2. Basic features**

#### **2.1. General**

Kerala with an areal extent of 38,863 Sq.Km. has a population of 3.18 crores. Physiographically the State can be classified into five zones. They are the mountain peaks of above 1800m from MSL, the highland at altitudes of 600-1800m, the midlands at altitudes of 300-600m, the low lands at 10-300m and coastal plain and lagoons below 10m. The high land slope down from the Western Ghats which are to an average height of 900 m with a number of peaks over 1800m in height. Aanamudi forms the highest

peak in the State. Kerala is drained by 44 short and swift flowing perennial rivers out of which three are east flowing.

**2.2 Geology:** Rock type of Kerala region belongs to four major age groups such as Archian, Proterozoic, Cretaceous and Cenozoic. The State comprises of an assemblage of migmatites, meta-sedimentary and meta-igneous rocks (Khondolite-charnockite assemblages) towards south migmatite, grunerite, amphebolite, calc granulites and granite towards the centre and granulite schists and gneisses and gneisses intruded by alkaline plutons constitute the northern most part. Tectonically the Kerala region can be divided into Precambrian and Tertiary tectonic provinces.

**2.3. Mineral Resources of Kerala:** Kerala State is endowed with a number of occurrences/deposits of minerals such as heavy mineral sands (ilmenite, rutile, zircon, monazite, sillimanite). Gold, iron ore, bauxite, graphite, china clay, fire clay, tile/brick clay, silica sand, lignite, limestone, lime shell, dimension stone (granite), gemstones, magnesite, steatite etc. However, mining activities on large scale are confined mainly to a few minerals such as heavy mineral sands, china clay and to a lesser extent limestone/lime shell, silica sand, granite dimension stone and granite/laterite building stones. In fact, heavy mineral sands and china clay contribute more than 90% of the total value of mineral production in the State.

#### Inventory of the Mineral Resources of the State

Name of Mineral	Location	Est. reserve (in MT)	Remarks
Mineral Sand	Chavara-Kayamkulam sector, Kollam Dist. North of Kayamkulam Pozhi-thottappali, Alappuzha Dist.	127.00*	Total Heavy mineral Estimated Reserve
		17.00	
Gold Primary Gold	Maruda, Nilambur, Malappuram Dist., Kappil, Nilambur, Malappuram Dist.	0.55	4 g/t
		0.0613	4.1 g/t
	Puttumala, Attappady, Kottathara, Palakkad Dist.	0.08	12.98 g/t
		0.0067	14.99 g/t
Placer Gold	Punnappuzha and Chaliyarpuzha, Nilambur, Malappuram Dist.	30 m cu.m. 2.5 m cu.m	0.07 g/m <sup>3</sup> 0.1 g/m <sup>3</sup>
Iron Ore	Kozhikode & Malappuram Dist.	84.00	Magnetite Oxidised: 39.0 MMT Unoxidised 45.0 MMT Fe 32.0 – 41.0%
Bauxite	Kannur & Kasaragod Dist. Kollam & Tvpm. Dist.	10.16	Metallurgical grade 5.2 MMT
		2.65*	
Graphite	Tvpm., Kollam, Kottayam &	2.81	5% to 25%

	Ernakulam Dist.		Fixed Carbon
China Clay	Tvpm., Kollam, Kannur & Kasaragod Dists.	172.00*	Probable : 80 Possible : 92
Ball Clay	Tvpm., Kollam, Kannur & Kasaragod Dist.	5.67	Inferred reserve
Fire Clay	Kollam, Alappuzha, Ernakulam, Thrissur & Kannur Dist.	11.50	Inferred reserve
Silica Sand	Cherthala, Alappuzha Dist.	28.40	Mineable resources glass sands-High SiO <sub>2</sub> , Recently assessed
Lignite	Madayi, Kannur Dist., Nileswaram, Kadamkottumala & Kayyur, Kasaragod Dist.	5.60 2.50 1.00 0.55	
Limestone	Pandarathu, Walayar, Palakkad Dist.	24.00*	15-20% only available now
Limeshell	Vembanad lake & adjacent areas Alappuzha & Kottayam Dists. Coastal tracts of Kannur, Kasaragod Dist. & Estuaries of Periyar and Kadalundi puzha Kozhikode Dist.	4.05*	Chemical grade
Magnesite	Salayoor, Mulli, Palakkad Dist.	0.037*	
Talc/Steatite	Kozhikode & Kannur Dist.	7.94	Inferred reserve

\* These are the estimated reserves of yesteryears mining is in progress for the minerals from long time it is required to re-estimate the reserve to arrive on present availability.

### 3.0. Mineral Based Industries in the State

The State owns mineral deposits like placers, china clay (kaolin), lime stone, silica sand, bauxite, graphite, iron ore, granite etc. The major mineral based industries like Indian Rare Earths Ltd. (Chavara), Kerala Minerals and Metals Ltd.( Chavara), Malabar Cements (Walayar), Travancore Cements Ltd. (Kottayam), Kerala Ceramics (Kundara), Travancore Titanium Products Ltd. and English Indian Clays Ltd., (Thiruvananthapuram), Excel glass Industry (Alappuzha), Kerala Clays and Ceramic Products Ltd. (Pazhayangadi) are some of the mineral based industries working in the State since several years. A number of tile based industries are also functioning mainly in Thrissur and Kozhikode districts. The ornamental granites are also being exported.

### 4.0. Infrastructure for mining activities

**4.1. Railway:** Broad gauge railway line facility is available in all districts except Idukki and Wayanad and doubling of the railway line and conversion of meter gauge is in progress through out the state. This enables the movement of minerals very fast to different parts of the country.

**4.2. Road network:** State is endowed with well developed road network and these enables easy transportation of minerals to all parts within and outside the State.

**4.3. Human Resources:** A large number of skilled and un-skilled personal are available in the State. There are totally nine colleges teaching geology as the main subject of which six institutions are having post graduation.

**5.0. Regulation of Mines & Minerals:** Rivers, forests, minerals and such other resources constitute a nation's natural wealth. These resources should be used in a sustainable way. Indian parliament has recognised this and declared that in the public interest, the Union should take control and regulation of mines and development of minerals and has enacted the Mines & Minerals (Development & Regulation) Act, 1957 and it stipulates for the conservation, prudent and discriminate exploitation of minerals with a view to secure maximum benefit to the community.

In exercise of powers conferred by section 13 of Mines and Minerals (Development & Regulation) Act 1957, the Central Government has framed the Mineral Concession Rules, 1960. The Central Government has also framed the Mineral Conservation and Development Rules, 1988 in exercise of the powers conferred by section 18 of the Act. These Rules are applicable to all minerals except coal, atomic minerals and minor minerals. The powers of framing rules for minor minerals have been delegated to the State under section 15 of the mines Act. In exercise of the powers conferred by section 15(1) of the Act the State has framed the Kerala Minor Mineral Concession Rules 1967 for regulating the extraction of minor minerals.

The Central Government has also framed in exercise of powers conferred by section 18 of the Act, the granite conservation and development rules, 1999 for conservation & systematic development and scientific mining aiming at conservation of the granite resources and to prescribe uniform frame work with regard to systematic and scientific exploitation.

The grant of reconnaissance permit, prospecting licence or mining lease are governed by the central Act. The State in the case with the prior approval of

Government of India grants permission for reconnaissance permit, prospecting licence or mining lease for the first schedule minerals on first cum first served basis.

Other Acts and Rules which govern the mineral administration of India applicable to the State are the following:

1. The Mines Act, 1952 (Act 35 of 1952)
2. The Mines Rules, 1955(35 of 1952)
3. The Metalliferous Mines Regulations, 1961
4. The Mines Rescue Rules, 1985
5. The Mining Lease (modification of terms) Rules
6. Mines Vocational Training Rules, 1966
7. Payment of wages (Mines rules, 1966)
8. Payment of undisbursed wages (Mines rules, 1989)
9. The Indian Explosive Act, 1884
10. Air (Presentation & Control of Pollution) Act, 1981 (14 of 1981)
11. Environment (protection) Act, 1986 (29 of 1986)
12. Indian Registration Act, 1908 (Central Act of Act 16 of 1908)
13. Kerala Protection of River Banks and Regulation of Removal of Sand Act, 2001
14. Kerala paddy field and wetland conservation Act, 2008.
15. Kerala Panchayath Act.

Government of India have liberalised the grant of licenses for most of the minerals except atomic minerals and hydrocarbon energy minerals under the National Mineral Policy, 1993. The Central Government has again declared the mineral policy on 10-04-2008 and further liberalised the procedure for the grant of licences. Foreign investment and technology have been encouraged. Ceiling on foreign equity in the mining industry has been removed. Limestone has been removed from the list of scheduled minerals. Now, approval of the Government of India is not required for sanctioning leases for cement grade limestone.

The process of economic reforms has led to the globalisation, privatisation and opening up of economy and these in turn necessitated changes in the policy and regulation for the growth and development of mineral sector in Kerala.

## **6.0. Objectives of State Mineral Policy**

Safety, environment and revenue to the Government are the order of preference considered while preparing the Mineral Policy. The basic objectives of the Kerala Mineral Policy are as follows:

1. To explore the mineral wealth of the State expeditiously by adapting modern exploration techniques.
2. Preparation of State inventory of mineral resources based on an upto date review of exploration data on a GIS platform.
3. Extraction of mineral deposit by modern mechanised and scientific mining methods with regard to optimum extraction, mine safety with minimum adverse effect to environment and ecology.
4. To encourage more of imports than export of minerals.
5. Notification of mineral bearing areas and rehabilitating the people to facilitate long-term mineral extraction.
6. To achieve greater transparency in decision making through e-governance.

## **6.1. Mineral Policy**

Measures will be continued for checking unauthorized mining stocking and transportation of minerals. Steps will be taken for necessary amendment of the Kerala Minor Mineral Concession Rules – 1967 as and when required. Export and transportation of minerals to other state will be permitted for only those minerals which are surplus in the State.

### **6.1.1. Mineral Concession**

As far as mineral sand is concerned, the Government will stick to the policy declared in the industrial policy 2007 that the mining and extraction will be permitted only through State/Central Public Sector Undertakings (PSU's).

While granting mining leases value addition will be insisted by promoting processing units and mineral based industries in the State.

Entrepreneurs promoting development of human resources and employment guarantee programme will be given priority.

Mining leases will be granted to those applicants who have long term programme concept and provide more employment opportunities. For eg: minerals like iron ore. Priority will be given to those who install processing / beneficiation unit.

Adjoining minor mineral leases of smaller areas granted under KMMC Rules, 1967 will be amalgamated into a single lease. Non working quarries/mines will be identified and effort will be made to ensure the mining leases are not kept idle. Productivity of mines will be insisted while leasing the mine and reviewed periodically.

Priority will be given to SC/ST while granting leases in the revenue land.

Reconnaissance permits will be granted for a total area of 1500 sq. km with a maximum of 3 applications having maximum areas of 500 sq. km for individual applications considering density of population of the State and high demand for land (eventhough as per act the RP can be granted over an area up to 5000 sq. km subject to a maximum of 10000 sq. km for individual applicant).

Application for Reconnaissance Permit, Prospecting Licence, Mining Lease by the private entrepreneurs will not be considered in areas and for certain minerals where government is interested in exploration and mining through its agencies.

### ***6.1.2. Eradication of scarcity of minerals***

Since tile industry is affected by the non-availability of tile/brick clay they will be encouraged for identifying new areas from where tile/brick clay can be extracted by enforcing other statutory provisions of land conservation, utility and environmental protection.

Considering the shortage of construction grade sand transportation of sand from outside the State as well as desiltation of reservoirs will be undertaken after ascertaining sustainability and least impact on environment.

Production of manufactured sand (M-sand) will be promoted by identifying suitable areas for extraction of source materials for M-sand.

Utilisation of waste and qantas arising from the granite dimension stone and other granite building stone quarries will be promoted for M-sand production.

For promoting the small tile production, suitable royalty will be fixed for dimension stones which are not suitable for export and polishing as big slabs.

### **6.1.3. Mining and Environment**

In addition to EIA requirements as stipulated by the Central Government, an EIA report will be insisted on all mining activities before granting mining lease. Environment rehabilitation will be insisted in all mining projects. To compensate for the mining related health hazards a mining area welfare fund will be generated with contribution from the lessees and Government. This fund will also used for the rehabilitation, afforestation and stabilisation of slopes and dumps etc.

The abandoned quarries in the State will be rehabilitated based on scientific studies. Environment management shall be ensured through Kerala State Pollution Control Board while safety shall be ensured through the departments of Mining and Geology, Department of Mines Safety, Indian Bureau of Mines and Petroleum and Explosives Safety Organisation.

Afforestation of the reclaimed area will be promoted. Before the renewal of mining lease of major minerals it will be assured whether the mining lease area has been developed as per the approved mining plan systematically.

### **6.1.4. Research and Development.**

Mining methods determine the safety, economy, speed and the percentage of extraction of minerals from a quarry/mine. Research and development shall be taken up especially in the areas of rock mechanics, ground control, mine/quarry design engineering, equipment deployment and maintenance, energy conservation, environmental protection, safety of operations and human engineering.

Designing of special mining techniques, mining equipments and machineries that reduce the environmental impacts related to the small scale mining activities of the State will be supported.

Induction of foreign technology for the beneficiation of the low grade minerals will be promoted.

Attention will be given to beneficiation and agglomeration techniques to bring lower grades and finer size material into use. Research and development will be oriented to ensure maximum economic recovery of the associated minerals and valuable metals.

Man power development in the areas of mining, mineral development and development of value added products will be promoted and syllabus in this regard will be incorporated in the curriculum of the educational institutions and new training Centers will be established.

Technical training to the blasters, mine mates, foreman, surveyors and persons of various other capacities will be promoted.

Extensive programmes/exhibition will be organised in the State periodically on mineral and mineral based products and seminars will be organised for government functionaries and entrepreneurs.

Development of a national level museum and geological park to create better awareness to the public and students regarding the mining/quarrying and the earth and environment system will be taken up.

#### **6.1.5. Mineral Exploration**

Participation of MECL in the exploration of high value base metals like gold will be encouraged.

Palaeo channel study will be continued in collaboration with GSI for identification of sand deposits considering the shortage of construction grade sand.

Action will be initiated along with the Central Government for coordinating the survey, exploration and mining of mineral deposits of offshore of Kerala coast.

Budgeting of minerals of the State will be carried out.

#### **6.1.6. Mining area welfare**

Considering the inadequate welfare measures to mine workers in cluster mining areas amenities like school, hospitals etc.. will be promoted and proper housing, drinking water facility, etc will be provided. Uniform, insurance coverage, health insurance etc. will be implemented.

Local Self Government bodies will be encouraged to take responsibility of maintaining a Corporate Social Responsibility fund with 3% of the net profit of the mining agency.

Subsidy for importing equipments for value addition will be considered.

Incentives provided under the industrial policy will be extended to mining and mineral development field also.

## **6.2. Implementation of the policy**

A State level Advisory Council will be set up under the chairmanship of the Minister for Industries and it will have representation from major stakeholders of mining sector of the State to oversee the implementation of the Mineral Policy. The Council will meet once in every year. An Executive Committee headed by the Principal Secretary to Government, Industries Department, will be constituted to take suitable steps for mitigating the issues pertaining to mining sector of the State. Progress in this regard would be reviewed by the Advisory Council.